

# Chronic disease intervention in patients with cardiovascular disorders: a systematic review

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**Abstract. – OBJECTIVE:** This study aims to determine the elements of cardiovascular programs for risk management in elderly individuals with cardiac illness, with a focus on the features of the initiatives, advantages, and behavioral modification methodologies utilized.

**MATERIALS AND METHODS:** In November 2022, a systematic literature search was conducted following PRISMA recommendations. Researchers used the databases MEDLINE, CINAHL, Scopus, Web of Science, Cochrane, Academic Search Complete, as well as Medclatina to conduct the research. The scholarly study population included 21 publications encompassing 26,040 patients with chronic diseases. The study took a qualitative approach to examine residents' use of phrases like "severe illness" and "non-communicable diseases," as well as terms connected to interventions like "programme development," "long-term care," and "community health planning." The results of the study were analyzed in terms of expected outcomes for cardiovascular disease in terms of behavior patterns, risk assessment, and co-morbidities.

**RESULTS:** The constituents, expertise fields of study associated, timeframe, as well as techniques employed vary across prevention strategies. The most common behavior modification methodologies are advice and negotiation.

**CONCLUSIONS:** In conclusion, the researcher describes that informative involvement is an agreed-upon method for controlling CVD threat in people with prolonged illnesses. The program's effectiveness cannot be determined due to the heterogeneity of the interventions. More research is required to improve the consistency of the results.

*Key Words:*

Chronic diseases, Risk management, Systematic review, Cardiovascular disease, Patients.

diac or cerebrovascular artery lesions, as well as peripheral arterial disease, are the most common<sup>1</sup>. CVD caused 17.9 million deaths in 2016, accounting for 31% of all deaths worldwide<sup>2</sup>. This trend is followed by Portugal, which has a rate of death of much more than 30%<sup>3</sup>. The strategic geographical proposed solution needs to prioritize lowering preventable deaths (70 years) through the National Program for cerebro-cardiovascular diseases<sup>3</sup>.

A healthy lifestyle can help control cardiovascular disease risk factors like smoking, high blood pressure, dyslipidemia, obesity, diabetes, as well as physical inactivity, among others<sup>1</sup>. Physical activity, for example, has been shown<sup>4</sup> to help in the early diagnosis and treatment of chronic illnesses like cardiovascular events, cancer, diabetes, as well as chronic lung diseases. Healthy behavior modification, like more exercise as well as diet modification, was also recognized as crucial in the management of hypertension and pre-diabetes<sup>5</sup>.

In order to manage multiple risk factors at the same time, heart disease risk management has a broad scope of action. Nevertheless, the evidence<sup>6</sup> available does not always look into the execution of these intervention strategies at the same time. As a result, we cannot reach inferences regarding their efficiency in cardiovascular managing risks. Chronic disease management necessitates a disciplined process, which should include the following parameters according to the Chronic Care Model<sup>7</sup>: healthcare organization, service offering, decision-making assistance, healthcare information scheme, as well as assistance for self-management and treatment programs. To decrease chronic illnesses, self-management and cooperative therapy are appropriate<sup>8</sup>. These methods can help to reduce multiple chronic diseases in patients who have been suffering from them for a long time. By using this appropriate and scientific method, beneficial outcomes for individuals can be obtained<sup>9,10</sup>.

## Introduction

Cardiovascular diseases (CVD) are disorders that impact the blood vessels or the heart. Car-

Consequently, self-management of chronic illness is defined as an individual-centered approach that allows patients to participate fully in self-monitoring (of symptoms or physiological functions) as well as decision-making (planning of the illness as well as its implications)<sup>11</sup>. The prolonged disease remains the major cause of death in the U.S., with nearly half of all individuals suffering from one or more chronic illnesses. Intensifying regular exercise was seen to be an efficacious method for treating as well as preventing chronic diseases. Weight management, bone and muscle reinforcement, increases in balance as well as regular fitness, and improvements in mental disorders as well as well-being, and living quality are all benefits of regular physical activity, all of which are adversely affected by chronic illness. Present public health recommendations<sup>12</sup> suggest 150 minutes per week of moderate-to-vigorous aerobic activity. Despite this, just 35% of women diagnosed with breast cancer, 32% among those diagnosed with CVD, as well as 46% of those who had diabetes followed the guidelines for physical activity. Such limited rigidly adhering rates are not exactly unexpected, given that chronically ill individuals face far more obstacles to physical exercise than individuals who do not have chronic illnesses<sup>11</sup>. Worldwide, cardiovascular diseases account for the majority of death and disability. In the early twenty-first century, heart illness was accountable for nearly half of all mortalities in developed nations as well as 25% of all developing country deaths. In general, the patient's condition in the circumstance of an emotional disease affects many aspects of everyday life. Furthermore, the socioeconomic consequences of such diseases must not be overlooked. Despite advances in treatment methods, patients with long-term diseases frequently do not obtain desirable care, necessitating multifaceted as well as interconnected treatments roughly proportional to the patient's condition<sup>12</sup>. A programmed method, given to the chronic care model, is an excellent solution to care for chronically ill individuals at home. The model produces a person-centered, scientifically evidence-based system that fosters purposeful, supportive interactions among insightful person-clients as well as a preventative and ready team. In contrast, behavior-altering methodologies are essential for the development and execution of programs that encourage chronic illness self-management. The efficiency of this behavior-modification strategy is attributed to the use of causal tools that not only regulate behavior but also modify causal mechanisms, as discussed in literature<sup>13-15</sup>.

Because there is insufficient proof of the efficacy of programs that encourage chronic disease care, research on new aspects of healthcare is a primary concern. Thus, the purpose of this study is to determine the components of cardiovascular programs for risk management in elderly individuals with cardiac illness, with a concentration on the initiatives, advantages, and behavioral modification methodologies utilized<sup>16</sup>.

## Materials and Methods

### *Search Strategy*

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) rules were followed in this systematic assessment of the literature<sup>17</sup>. In November 2022, researchers performed the study. Randomized controlled studies accepted for publication in both 2015 and 2021 that assessed the influence of cardiovascular events intervention strategies in that individually selected communities with chronic disease were included in the study. Respondents must be over the age of 18 and suffer from one or more chronic illnesses. Investigations in which the goal of the intervention was not to reduce cardiovascular risks were excluded. People who were not authorized to take part in the study were healthcare employees, people with contagious diseases, children, pregnant women, and mothers who recently gave birth. In addition, the qualitative approach, opinion columns, theory and practice, and systematic review were not allowed. Despite the inadequate sources for adaptation, this evaluation was restricted to studies in English, Portuguese, and Spanish, in addition to French. The databases MEDLINE, CINAHL, Scopus, Web of Science, Cochrane, and Google Scholar Comprehensive were used by the authors to search for relevant studies. The qualitative study examined residents' use of "severe illness" and "non-communicable diseases," as well as search results for intervention-related phrases like "programme development," "long-term care," and "community health planning." The study projected risks, health risks, behavioral patterns, risk evaluation, and co-morbidities.

## Results

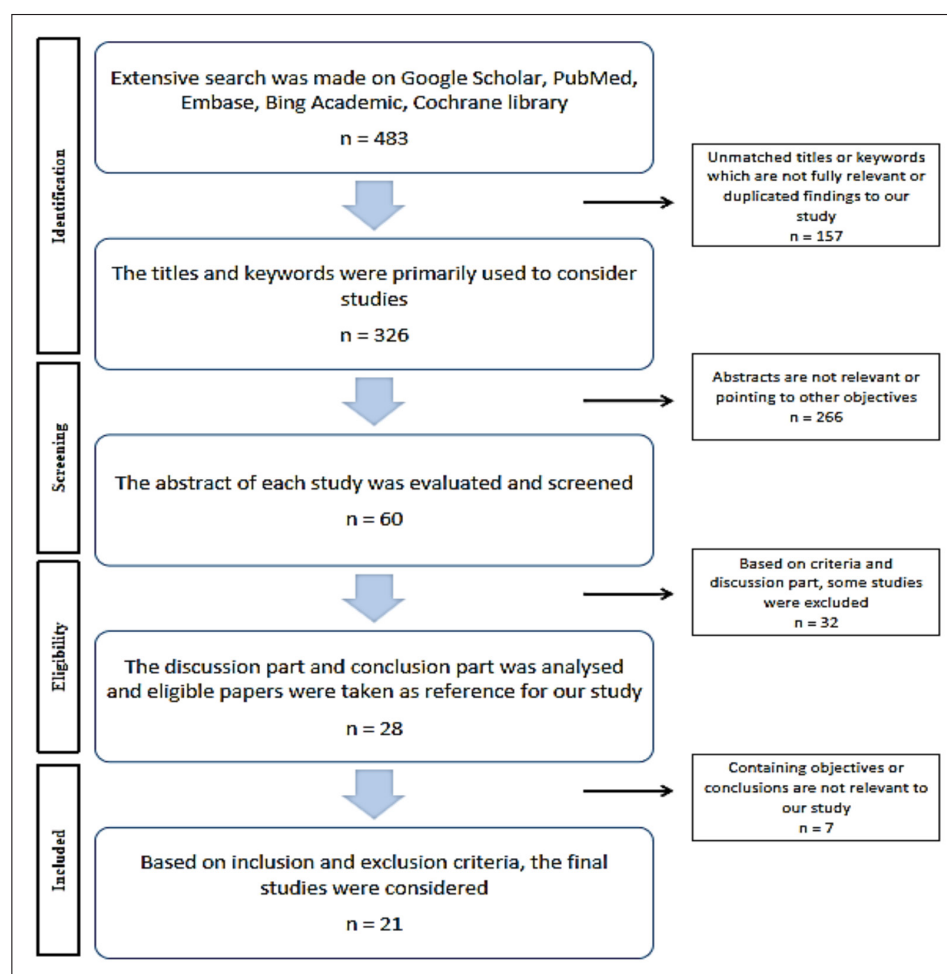
The research method involved conducting a database investigation, resulting in the identification of 483 articles. Furthermore, four journals

were added through a bibliographic reference investigation. After removing duplicates, the investigators received a sample of 326 unique papers. During the shortlisting and evaluation method, a total of 60 papers were excluded based on specific standards and pertinence, leading to the final selection of 21 papers<sup>16,21-40</sup> (as shown in Figure 1). These 21 papers were considered most relevant to the research goals and constructed the basis of the research findings.

To confirm the levels of quality<sup>18</sup> of the research methodology, randomized controlled experimental investigations<sup>12</sup>, quasi-experimental research<sup>8</sup>, and a cohort study<sup>1</sup> were included in the study. The bibliographic sample included 26,040 people with chronic illnesses from the United States, Turkey, the United Kingdom, Spain, Australia, Iran, Malaysia, Thailand, Finland, Italy, Germany, the Republic of Korea, Canada, and China. The main objective of all the research findings is to bring about positive modifications in the lives of individuals involved, striving to accomplish

more useful supervision of heart disease risks. The studies aim to execute interventions and methods that can have a transformative influence on individuals' lives, ultimately leading to better management and removal of cardiovascular risks. The intervention components of the various programs presented focused on patient monitoring, physical activity, diet, treatment adherence, or motivation, either alone or in combination.

Nurses, nutritionists, pharmacists, physical trainers, and public health professionals also provide interventions. The duration of the interventions varied across the studies, ranging from 3 to 52 weeks. On average, the programs lasted for approximately 16 weeks, with a standard duration of 12 weeks. Participants must be elders with one or even more long-lasting illnesses, including type 2 diabetes, hypertension, obesity, metabolic syndrome, or heart disease. Overall, the implementation of the programs reduced the risk of CVD. Table I highlights the importance of increased physical activity and improvements



**Figure 1.** PRISMA diagram of the systematic review.

**Table I.** Studies included in this systematic review for evaluation.

Authors	Type of study	No.	Chronic illness	Treatment	Measuring components	Results	Findings
Abbott et al <sup>16</sup>	RCT (cluster)	146	Diabetes	3 diabetes education group discussions (90-120 minutes). Period: 3 weeks	The primary objective of the study is to examine concise synopses of diabetes self-management programmes, an enhanced assessment tool for gauging comprehension of diabetes knowledge, and investigations into the impact of social support on levels of diabetes fatalism and associated health consequences.	Diabetes expertise, self-care, defeatism, as well as social protection	Substantial improvements in diabetes knowledge, eating plan behavior patterns, as well as blood glucose tests were observed in the study participants.
Hamarneh et al <sup>21</sup>	RCT (multicentric)	573	Diabetes	Pharmacist assessments every four weeks for three months	Framingham risk-assessment formula; U.K. prospective diabetes investigate risk-assessment formula; prototype to anticipate chronic cardiovascular disease risk-assessment linear model	HbA1C, BP, Cholesterol, HDL, LDL, Tobacco, medicine and lifestyle (diet and exercise). Cardiovascular (CVD) danger	Heart risk was lowered as well as personal regulation of cardiovascular events improved in the treatment group.
Blackford et al <sup>22</sup>	RCT	401	Metabolic syndrome	Six months of residential workout as well as nutritional advice	Criteria of the International Diabetes Federation	Anthropometry, Glycemia, Cholesterol, HDL, LDL	When compared to the control group, the involvement group showed significantly lower triglyceride, total cholesterol, as well as LDL levels. The abdominal circumference, waist-hip ratio, as well as body mass index all enhanced.
Chao et al <sup>23</sup>	Cohort study	310	Overweight or obese as well as excessive weight gain	6-month nutritional education agenda	---	Anthropometry	Involvement group members actually lost weight than monitoring team members.

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**Table 1 (Continued).** Studies included in this systematic review for evaluation.

Authors	Type of study	No.	Chronic illness	Treatment	Measuring components	Results	Findings
Fitzpatrick et al <sup>24</sup>	RCT	182	Diabetes	Individualized health education (G1), group meetings (G2), as well as self-study (G3) 18-20 weeks	WRAT-3 (Wide Range Achievement Test); PHQ-2 (Patient Health Questionnaire); Health Problem Solving Scale (HPSS)	Comprehension symptoms of depression, HDL, LDL, BP, HbA1C	Comprehension, symptoms of depression, HDL, LDL, BP, HbA1C, Post-treatment, the DECIDE methodologies' actual reasons. The independent study found significant advancements in clinical as well as behavioral responses.
Bowen et al <sup>25</sup>	RCT	202	Diabetes	For 12 weeks, group teaching, nutrient counseling, medical assistance, and phone service are provided	12-item Short-Form Survey [SF-23]; German version of the center for Epidemiological Studies-Depression [CES-D] Scale; German version of the Three-Factor Eating Questionnaire [TFEQ]; 10-year Framingham Risk Assessment	Anthropometry, Triglycerides, HDL, LDL, BP, Glycaemia, HbA1C Medication depression and quality of life CVD danger	The TeLiPro group had a substantially larger lowering in HbA1c. TeLiPro can enhance glucose tolerance as well as provide additional choices for avoiding therapeutical strengthening in advanced type 2 diabetes.
Kleist et al <sup>26</sup>	RCT	82	Overweight or obese as well as excessive weight gain	12 weeks of outdoor walking as well as nutritional involvement		Cholesterol, HDL, LDL, Anthropometry, Glycemia, BP, FC	Important biological indicators improved significantly as a result of participation in this campaign, thereby lowering cardiovascular disease risk factors.
Radler et al <sup>27</sup>	Quasi-experimental, "Pre-post" design	79	Overweight or obese as well as excessive weight gain	Online or in-person learning discussions 12 months of personal dietary consultation process	10-Year CVD Risk in Framingham	Cholesterol, HDL, LDL, BP, Anthropometry, CVD danger	Mass as well as waist size improved statistically significant.

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**Table 1 (Continued).** Studies included in this systematic review for evaluation.

Authors	Type of study	No.	Chronic illness	Treatment	Measuring components	Results	Findings
Ventura et al <sup>28</sup>	RCT	59	Overweight or obese, hypertension, dyslipidaemia, as well as diabetes	12 weeks of telenutrition interference for weight loss	---	Program adherence, Anthropometry, Consumption of calories	Losing weight was more observed in the intervention class. The preservation, ability to adhere, as well as satisfaction levels noted by attendees in the telenutrition cohort were $\geq 80\%$ .
Mills et al <sup>29</sup>	Quasi-experimental, "Pre-post" design	85	Factors increase the risk for cardiovascular events	12 weeks of health information and physical activity	Walk for six minutes	BP, Anthropometry, Distance by foot	Easily walkable route increased by 0.053 km on the mean. Individuals classified as obese experienced a mean reduction in weight of 1.6 kg, whilst those with elevated systolic blood pressure observed a decrease of 11 mmHg.
Rigamonti et al <sup>30</sup>	Quasi-experimental, "Pre-post" design	684	Obesity	12 weeks of calorie reduction, nutritional knowledge, psychological help, as well as physical exercise	Heart Disease Hazard, Tiredness Intensity Scale, Stair Climbing Test (SCT)	Exhaustion, Cardiovascular risk, muscular effectiveness in the lower limbs	A reduction in body weight by 4% has been found to be associated with positive effects on musculoskeletal and metabolic health, leading to improvements in overall well-being and increased independence in performing everyday tasks.

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**Table 1 (Continued).** Studies included in this systematic review for evaluation.

Authors	Type of study	No.	Chronic illness	Treatment	Measuring components	Results	Findings
Teychenne et al <sup>31</sup>	RCT (Cluster)	318	T2 Diabetes or being overweight	A year-long strength-training programme to improve fitness and well-being.	CHAMPS (Community Healthy Activity Models Program for Seniors) instrument; three-rep maximum strength (3-RM)	Glycemia, Anthropometry, Muscular power, HbA1C	The society behavioral intervention resulted in the adoption of resistance training as well as a substantial decrease in HbA1c in diabetics.
Yazdanpanah et al <sup>32</sup>	Quasi-experimental, "Pre-post" design	20	HTN	4 weeks of learning group meetings (8; 60-minute sessions)	Morisky Medication Adherence Scale, 8 Items (MMAS- 8)	Medication adherence	In the intervention group, adherence to medication was considerably greater.
Abkenar et al <sup>33</sup>	RCT	110	Diabetes	2-month academic initiative (Islamic self-care, with the intention of pleasing God)	-----	Therapy for triglycerides, LDL, HDL, and total Cholesterol	The study participants drastically enhanced their triglyceride as well as LDL thresholds while not increasing their use of hypoglycemic drugs.
Ladee et al <sup>34</sup>	Quasi-experimental, "Pre-post" design	78	HTN	10-week learning course: 10 small-group learning workshops Messages and phone calls	35-item survey form on cardiovascular self-management behavior	BP, Self-care	The investigational members in the group drastically enhanced their blood pressure control.
Mahadzir et al <sup>35</sup>	Quasi-experimental, "Pre-post" design	48	Metabolic syndrome	PERSUADE is a 12-week peer support program	Questionnaire for assessing customer	Successful engagement survey form, Interference compliance anthropometry fulfillment, HDL, LDL, BP, Cholesterol	With the exception of diastolic blood pressure, both anthropometric as well as metabolic parameters evaluated only after involvement showed substantial drops.

*Continued*

**Table 1 (Continued).** Studies included in this systematic review for evaluation.

Authors	Type of study	No.	Chronic illness	Treatment	Measuring components	Results	Findings
Jahangiry et al <sup>36</sup>	RCT	160	Metabolic syndrome	6-month online learning	SF-36 International Physical Activity Questionnaire (IPAQ) for the previous 7 days; Iranian Food Frequency Questionnaire (FFQ)	Anthropometry, Glycaemia, HDL, LDL, cholesterol, BP Consuming frequency; Physical exercise; Standard of living	The treatment group showed substantial alterations in physical exercise, diet, as well as lifestyle quality when compared to the control group.
Riddell et al <sup>37</sup>	RCT (Cluster)	236	Diabetes	Peer Education Training for 12 weeks	Coronary heart disease threat in 5 Years (UKPDS risk score)	Glycemia, Anthropometry, HDL, LDL, BP, Cholesterol, HbA1c and CVD risk	Favorable behavior modifications in the experimental group did not lower cardiovascular risks, even though 50% of participants had well-controlled DM2 at the start of the study.
Sayón et al <sup>38</sup>	RCT	6874	Metabolic Syndrome	A 12-week intervention implemented a low-energy Mediterranean diet in conjunction with exercise.	Med Diet score (diet adherence); MDS (diet quality); MEDAS score (diet quality); PDQS (quality of diet)	Dietary compliance Anthropometry, sHDL, sLDL, sCholesterol, sBP	In contrast to the recommendation of following an unrestricted Mediterranean diet, the intervention demonstrated a significant enhancement in dietary adherence within a 12-month period.
Yamane et al <sup>39</sup>	Quasi-experimental "Pre-post" Design	24	HTN, DM2	3-months education program and selection attempting to create and bolster supportive efforts	-----	Managed blood pressure	The treatment improved the participant's comprehension of prescription drugs as well as high blood pressure healthier lifestyles.
Bayındır et al <sup>40</sup>	Quasi-experimental, "Pre-post" design	139	DM2	1-month health and nutrition training course over the phone	Risk Plus score for Atherosclerotic Cardiovascular Events (ASCVD)	Anthropometry CVD risk from tobacco consumption	Red meat consumption, packaged food intake, as well as HbA1C levels all fell. Consumption of water, exercise frequency, as well as aspirin use all increased. The program was successful in terms of improving nutrition, lifestyle, and glycemic control."



in various factors such as health knowledge and regulation of analytical parameters (including HgA1C, glycemia, lipidemia, and blood pressure). These factors play a significant role in achieving positive outcomes in chronic care management. The studies reviewed the effective interventions for chronic illness care focused on assisting decision-making as well as self-management. In the programs studied, the surviving Chronic Care Model dimensions have a residual expression (Table II).

These programs used a range of approaches to encourage behavioral change in these studies. The most commonly used ones are in the domains of feedback and monitoring, as well as knowledge modeling (Table III).

Treatment approaches are aimed at lowering heart disease risks in chronically ill individuals to improve cognitive, behavioral, and clinical health (Table IV). The benefits are most visible at the stage of information acquirement, with obvious consequences in healthy changes. Since every program focuses on various risk components, the results of the various studies differ greatly.

## Discussion

The studies<sup>16,21-40</sup> included in this review found significant improvements in diabetes and diet plans for the overall management of diabetes and also concluded that maintaining a proper diet and healthy lifestyle may alter hyperlipidemia. Well-controlled diabetes is likely to result in the reduction of cardiovascular risks. Few studies<sup>18</sup> have highlighted the benefits of the Mediterranean diet. Most of the studies<sup>19</sup> have highlighted the benefits of adopting a healthier lifestyle through training or educational programs, which proved to be effective in controlling diabetes as well.

Following an analysis of the content of the papers, it was essential to confirm the initiatives' heterogeneity in the following aspects: origin, structure, duration, and behavior modification methodologies utilized<sup>17-24</sup>. In response to the people's different health conditions and within the context of their community, cardiovascular risk management strategies under consideration also include elements of health promotion, physical activity, food, medicine regime, surveillance, and inspirational behavioral science. More than 85% of the initiatives in this evaluation had at least two of the model's six dimensions in their structure. Implementing Chronic Care Model-based programs has been shown<sup>25-29</sup> to reduce healthcare usage as well as cardiovascular risk.

The results from the study sample indicate that the majority of these initiatives have successfully achieved and benefited underserved communities. In other words, the programs based on the Chronic Care Model have effectively targeted and served populations that typically face limited access to healthcare resources. Digital tools allow you to enhance the involvement with attendees, while also monitoring and supplementing the developed intervention<sup>19</sup>. Research<sup>20</sup> shows that online technologies not only aid in chronic illness self-management but also in the democratic reform of health care. As found in our sample, the most effective interventions included some form of behavior modification methodology. Behavioral change techniques are effective in chronic disease management<sup>27-32</sup>.

The evaluation of the health gains made by an individual in our cohort reveals that there are clear advantages for people who decide to change negative behaviors. Lifestyle change is critical in lowering CVD risks in people with chronic illness, resulting not only in better health outcomes but also in cost-effectiveness. Physical activity

**Table II.** Measurements of the Chronic Care Model discovered in research findings.

Measurements of the chronic care model	Fi	%
Organization for healthcare	6	28.57
Network of services	8	38.10
Decision-making assistance	21	100
Systems of information	6	28.57
Self-management assistance	18	85.71
Community assets	6	28.56

Fi = F-value.

**Table III.** Identification of Behavior Change Strategies (customized from the Behavioral Change Method Taxonomical).

<b>Behavior modification methodologies</b>	<b>Definition</b>	<b>Fi</b>	<b>%</b>
Define objectives (behavior/results)	Preparing and desired outcomes	7	33.3
Solving problems	Negotiate a goal in terms of desired (results) behavior Analyze factors that influence behavior with the person and devise strategies to overcome barriers or empower facilitators	7	33.3
Action preparation	Develop a complete plan for carrying out the behavior	8	38.1
<b>Observation and reaction</b>			
Observing the behavior of others	As a behavior modification strategy noticed or recorded the behavior with the person's knowledge	12	57.1
Behavioral feedback	Supervise as well as respond to the behavior's performance	13	61.9
Behavior/results Self-monitoring	As part of the behavioral change strategy, devise a method for the individual to monitor as well as record their behaviors/results	5	23.8
<b>Information of modeling</b>			
Training on how to develop behavior	Provide advice or start negotiating ways to improve behavior (includes skills training)	17	81.0
Broader background	Backstory information is available to predict. behavioral performance	8	38.1
<b>Natural sequences</b>			
Health consequences Information	Provides knowledge about the health repercussions of a specific behavior	7	33.3
<b>Comparison of behavior</b>			
Behavior presentation	Gives a noticeable instance of the desirable behavior, either directly or indirectly through film or image, to inspire or to be imitated	8	38.1
<b>Reinforcement and alternation</b>			
Formation of habits	Persistence of behavior in the same frame of reference to the point where the context causes the behavior	7	33.3
<b>Reward and threat</b>			
Monetary incentive	Notify what funding, coupons, or other valuable objects will be decided to offer if and only if there is an exertion and/or advancement in behavior, which contains positive encouragement	2	9.5
General incentive	Positive reinforcement would include rewarding if and only if there is an attempt and/or advancement in behavior	4	19.0

Fi = F-value.

and references to physical exercise are common in intervention programs<sup>30-33</sup>.

Heart disease is a common and important public health disease, and its occurrence is growing due to the proportion of older people as well as the diagnosis and treatment of acute cardiac disease.

This is an issue that affects an increasing number of people. Due to the obvious high mortality and morbidity all over the world, heart disease is a perfect target for a strategy that draws from several disciplines to achieve maximum care<sup>34-36</sup>. The function of the pharmacist in the manage-

**Table IV.** Allocation of respondents' health gains..

Health Gains		Fi	%
Cognitive	Acquired knowledge	18	85.7
	Behavioral	5	23.8
Clinical indicators	Glycaemia management	7	33.3
	Physical activity is practiced.	5	23.8
	Self-monitoring	3	14.3
	Observance of the medication regimen	2	9.5
	HbA1c values are normalized.	4	19.0
	Loss of weight	7	33.3
	Normalization of waist/hip circumference	7	33.3
	Blood pressure control	4	19.0
	Lipid profile management	5	23.8

Fi = F-value.

ment of heart failure patients has been the focus of a great number of research<sup>37-39</sup>. Even though there were several of them, this research concentrates mostly on medical treatment, even though treatments were examined with a wide range of focuses and in a variety of locations. Compared to other heart illnesses, there is obvious physical evidence supporting the efficacy of doctor involvement in decreasing the time of service and minimizing medical readmissions<sup>41-43</sup>. This review reveals that the pharmacist's involvement is beneficial. Furthermore, following educational interventions implemented by the pharmacist, patients with heart failure revealed an increase in patient well-being as well as overall self-perception of well-being<sup>44,45</sup>.

While they are two similar concepts, the distinctions among them lead to different strategies. More specificity in approaches in this field is needed, which we believe is an issue worth further investigation<sup>21,46</sup>. It is essential to one's well-being to abstain from smoking to reduce the risk of CVD. This potential risk, on the other hand, is not addressed in any of the effective interventions that were used for the population in this analysis. Considering this fact, it is essential to conduct additional studies on the implementation of interventions that concentrate on smoke as a potential cause of CVD, as well as a review of studies on interventions that assist people in stopping smoking<sup>47-50</sup>.

### Limitations

The programs' heterogeneity, as well as the incoherence of some results, make it very difficult to draw firm conclusions. In subsequent research, it is critical to examine the effects of various interventions to produce extra accurate results. It may have been interesting if the programs includ-

ed other components, including stress management and the management of smoking or alcohol habits.

### Conclusions

Cardiovascular illnesses are severe health disorders and leading causes of death worldwide. Numerous methods have been suggested<sup>49</sup> to mitigate the severity of these diseases based on the experience of risk variables and pathophysiology. Effective interventions in trying to manage cardiovascular risk in chronically ill individuals, according to the current scientific evidence, are critical for achieving health gains. Physical training, changes in food habits, psychological change, and people's education about healthy lifestyles are the primary non-pharmacological domains subject to intervention, which may include all of the aspects highly suggested to the person with a serious disease. Additional research<sup>50</sup> has been carried out in recent years to analyze the advantage of any of these constituents, in which the authors used various behavior modification methodologies to outline programs. In total, the emphasis was on increasing knowledge and monitoring. There was a decrease in the likelihood of CVD linked to the use of behavioral change measures in the studies examined herein. The following outcomes stand out: increased physical activity, weight loss, health knowledge gained, and, as a result, the influence of quantitative specifications (blood glucose, lipedema, and blood pressure). As a result of the findings presented here, authors can conclude that certain intervention strategies are promising in reducing cardiovascular risks in chronically ill patients.

### Conflict of Interest

The authors declare that there is no potential conflict of interest between them.

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### Authors' Contribution

We declare that this work was done by the authors named in this article, and the authors bear all liabilities and claims relating to the content of this article.

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