Community-based Participatory Research in Cardiovascular Disease Prevention for Middle-aged Women: A Systematic Review

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Background: Cardiovascular disease (CVD) remains a leading cause of morbidity and mortality among women, particularly those of childbearing age and middle-aged women, who face heightened risks due to physiological changes, stress and systemic barriers. Women of colour and those from low socioeconomic backgrounds are disproportionately affected. **Aim**: This article evaluates the effectiveness of community-based participatory research (CBPR) in reducing CVD risk among midlife women, emphasizing the cultural relevance of interventions as a critical factor for success. **Methodology**: Following the PRISMA guidelines, a systematic search of PubMed, Scopus and Web of Science identified 15 studies, including randomized controlled trials, practice-based participatory research (PBPRs) and mixed-methods research. These studies implemented CBPR interventions focusing on diet, physical activity, stress management and community participation for underserved populations. Outcomes measured included systolic and diastolic blood pressure, serum cholesterol, Body Mass Index (BMI) and fasting blood glucose, as well as participants' knowledge, behaviours and perceived community capacity. **Results**: The analysis showed reductions in systolic and diastolic blood pressure (7 and 4 mmHg, respectively), low-density lipoprotein cholesterol (10–15 mg/dL) and BMI (0.5–1.2 kg/m²), along with increases in high-density lipoprotein cholesterol (5–8 mg/dL). Culturally tailored interventions, such as dietary adjustments, group exercise and peer support, demonstrated improved compliance and maintenance of behavioural changes. Patterns of cultural relevance, trust and community ownership emerged as key determinants of success. CBPR offers significant potential for addressing health disparities and reducing CVD risk. **Conclusion**: Expanding CBPR approaches and conducting long-term interventions can enhance health equity and achieve lasting benefits across diverse populations.

Keywords

Cardiovascular diseases, community, health, health disparities, hyperlipidemia, physical activity, socioeconomic factors

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Cardiovascular disease (CVD) continues to be the primary cause of mortality and morbidity globally with middle-aged women presenting with additional and possibly, overlooked risk factors.[1] Despite several awareness programmes, there remain several gaps in the political education and representation needs of this group, which includes those from low socioeconomic status (SES) and culturally diverse backgrounds. These gaps accentuate the need for interventional approaches that not only aim at modifying the modifiable CVD risk factors but also other aspects of the social determinants of health delivery that allow for disparity.

Middle-aged women are females aged between 40 and 65 years, and they undergo physiological changes like menopause that make them vulnerable to CVD.[2] Common with this life stage is hypertension, altered lipid profiles and a higher prevalence of atherosclerosis. Moreover, psychosocial demands that load pressure of caregiving, work and family conflicts, and financial issues increase their vulnerability. These risks are combined with a lack of healthcare access, cultural susceptibility to diseases and structural discrimination that will not allow women in underserved communities to practice preventative health. Standard approaches to control CVD through public health interventions do not achieve much efficiency in targeting disadvantaged groups.[3] Imposing broad solutions that do not take culture or community barriers into account results in low participation, and not much behaviour change is observed.

Community-based participatory research (CBPR) is a collaborative research approach that actively involves community members, organizational representatives and researchers in all phases of the research process, ensuring shared decision-making and mutual ownership of findings.[4] Unlike traditional research methods, which often impose external interventions, CBPR is rooted in principles of equity, co-learning and sustainability.[5] This approach prioritizes the lived experiences of communities, fostering trust and cultural relevance, particularly among marginalized groups.[6] Given that CVD prevention requires sustainable behavioural change and accessible interventions, CBPR offers an effective framework by integrating scientific methods with community-driven solutions to address health disparities.[4] For instance, health promotion programmes providing culturally appropriate diets exercise profiles, and stress reduction have resulted in better survival rates among different cultures. Namely, CBPR not only strengthens intervention acceptability by the

community members in conformity with the qualitative framework but also provides participants with opportunities to take charge of the whole process in terms of research. For such populations, and especially for those challenging to reach, this self-empowerment is key in promoting sustainable behaviours and longer-term behaviour change.

Applying CBPR to middle-aged women has revealed modifiable risk factors relating to food choice, lack of physical activity and stress alongside the structural issues, including but not limited to scarce access to care and safe places for physical activities.[7] There are several good interventions, for example, culturally appropriate cooking demonstrations consistent with traditional diets and group exercise programmes to enhance cardiovascular health. Further, group support programmes and community-level stress awareness and management have provided more relevant psychosocial coping-based approaches to the risk of CVDs that are acceptable to the participants. Thus, the purpose of this article is to assess the extent to which integration of CBPR intervention leads to a reduction in CVD risk among middle-aged women with an emphasis on the efficacy of cultural adaptation as a critical hook in the intervention process. In this respect, this article aims to identify the process by which CBPR contributes to health equity in various contexts of practice. In detail, we assess how CBPR focuses on individual and contextual risk factors to get an understanding of the transformative nature of CBPR in public health.

The objectives of this article are threefold: first, to review the body of empirical literature dedicated to the effects of culture-based, CBPR-based interventions on CVD health outcomes, including blood pressure, cholesterol and body mass index (BMI); second, to determine how the process of cultural adaptation enhances the applicability and efficacy of such interventions; and third, to discuss the existing limitations of the literature and future possibilities for the field. Thus, this article should complement the current literature about CBPR as a framework for neutralizing health inequities and reaching health equity. Targeting middle-aged women who are a neglected population in CVD prevention proves how complex interventions need to be and how unique it is for each group to address the issues of CVDs. These insights are likely to feed into designing the next interventions to help policymakers, researchers and practitioners decrease CVD risk and enhance the quality of life of this population.

Methods

The systematic review design for this study adheres to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines to achieve methodological credibility and practicality. The first purpose was to review systematically and asses the findings regarding the efficacy of CBPR interventions of CVD and risk among middle-aged women, specifically ethnic minorities and low-income groups. This design incorporated a systematic approach in the identification of the literature, extraction of data and analysis. Randomized controlled trials (RCTs), qualitative studies and other quantitative empirical investigations were undertaken using CBPR methods that incorporate both qualitative and quantitative data collection approaches synchronously.

Search strategy

An initial search was performed in PubMed first followed by a broad search in Scopus, Web of Science and CINAHL databases. Other sources, such as internet sources, obtained from the list of references of the identified articles, and reports of organizations related to community health, were also considered to minimize the risk of limiting the study to the articles available in the indexed databases. Specific Medical Subject Headings' terms and other keywords identified in several CBPR initiatives and relevant literature on CVD in middle-aged women and culturally appropriate interventions were used in the search strategy. Specified examples of search terms were 'Community Based Participatory Research', 'CBPR', 'cardiovascular disease', 'CVD', 'health disparities', 'middle-aged women', 'cultural adaptation' and 'health equity'. The terms were connected with Boolean operators, including AND and OR, and filters were used to make sure that only articles that were published in English between the years 2014 and 2024 were included.

To ensure relevance to the research objectives, studies were selected based on the following criteria.

Inclusion criteria

- Population: Postmenopausal women aged between 40 and 65 years, irrespective of race, but more from a disadvantaged background.
- Intervention: Health interventions with CVD prevention based on CBPR or health initiatives addressing diet, exercise, stress and other modifiable risk factors.
- Outcomes: Outcomes assessed in terms of changes in the risk factors for CVD, including changes in blood pressure; marked alterations in lipid profile; BMI; self-reported dietary, physical activity and smoking habits.
- Publication type: Research articles, conference papers and reports from community health organizations.

Exclusion criteria

- Any research that does not focus on middle-aged women as the samples.
- Studies that did not receive approval through CBPR or comparable community-participating research paradigms.
- Studies that do not report health outcomes or lack culturally appropriate adaptation components.
- Surveys that have been done in the form of review, comment or editorial without actual data compiled from research.

Study selection process

This study employed the PRISMA flow diagram where details of the records obtained, screened, included and excluded are illustrated with explanations for the exclusion.

Data extraction

Information on the articles was collected systematically with particular attention to using a common extraction form. Key information collected included the following:

- data attributes (author, year, publication location and design of the study)
- sample, age and SES
- cultural tailoring strategies and type of CBPR intervention
- other objectives examined in the study (e.g. the change of such factors as blood pressure, blood cholesterol levels, the percentage of body fat defined by the BMI indicator or the level of health literacy)
- techniques of data collection and analysis
- activities with the communities and the extent of participation of the participants.

Quality assessment

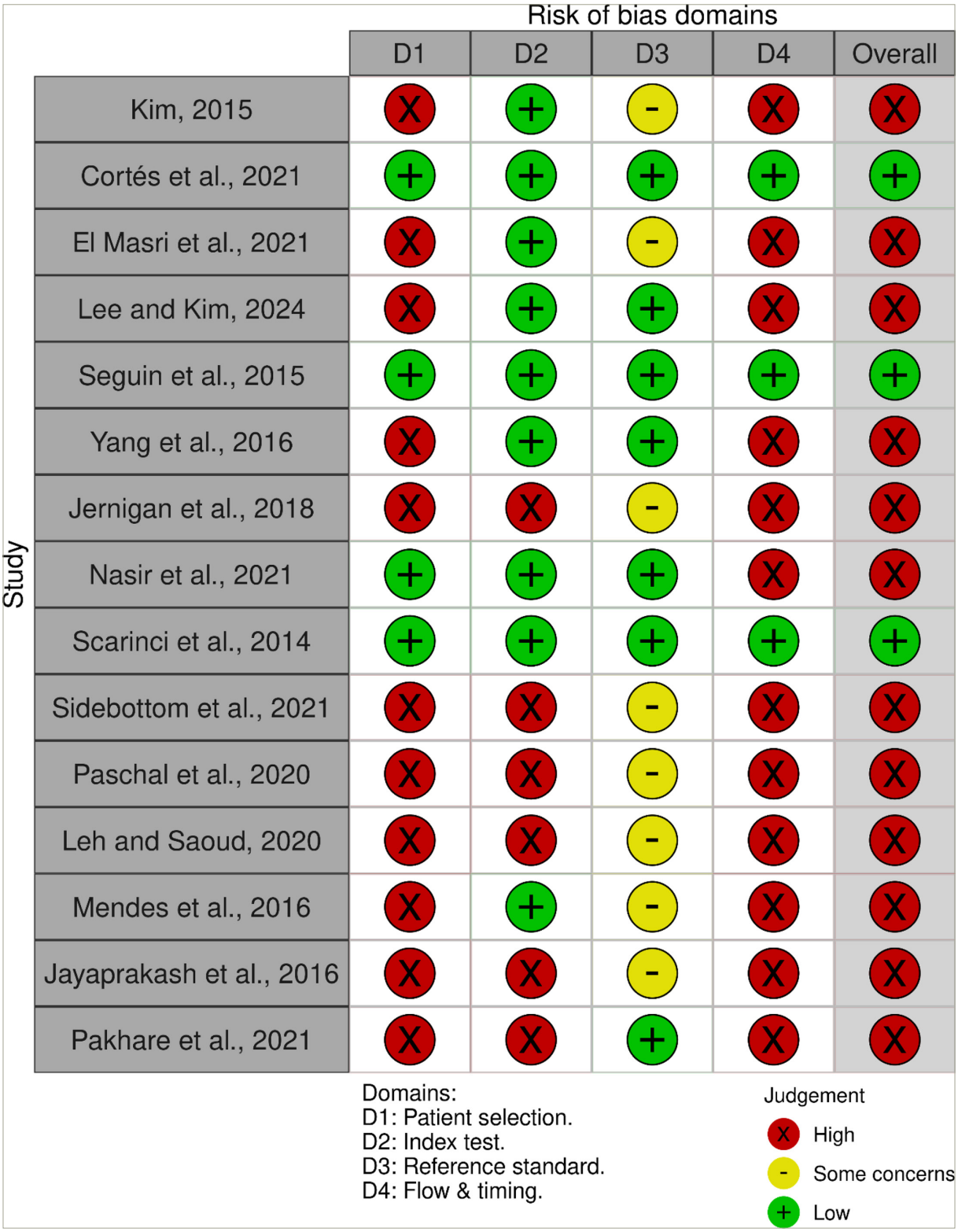
The quality of the included studies was evaluated using the 'Quality Appraisal for Diverse Studies' (QuADS) tool, adapted to emphasize methodological rigour and relevance without assessing the strength of recommendations. This adaptation offered a comprehensive framework for appraising various study designs while addressing potential bias risks, eliminating the need for supplementary bias assessment tools. The risk of bias assessment scores are presented in *Figure 1*.[8–22]

Results

Study selection

Out of the databases and other sources such as reference lists, 85 records were retrieved for the study. Out of the duplicates, 40 citations were retrieved for subsequent title and abstract screening. Of these, 20 were considered for analysis of the full texts. After the full-text review, 15 pieces of literature were used in systematic reviews A and B. The criteria for exclusion are reported in the PRISMA flow diagram

Figure 1: Risk of bias assessment (QuADS) test[8–22]



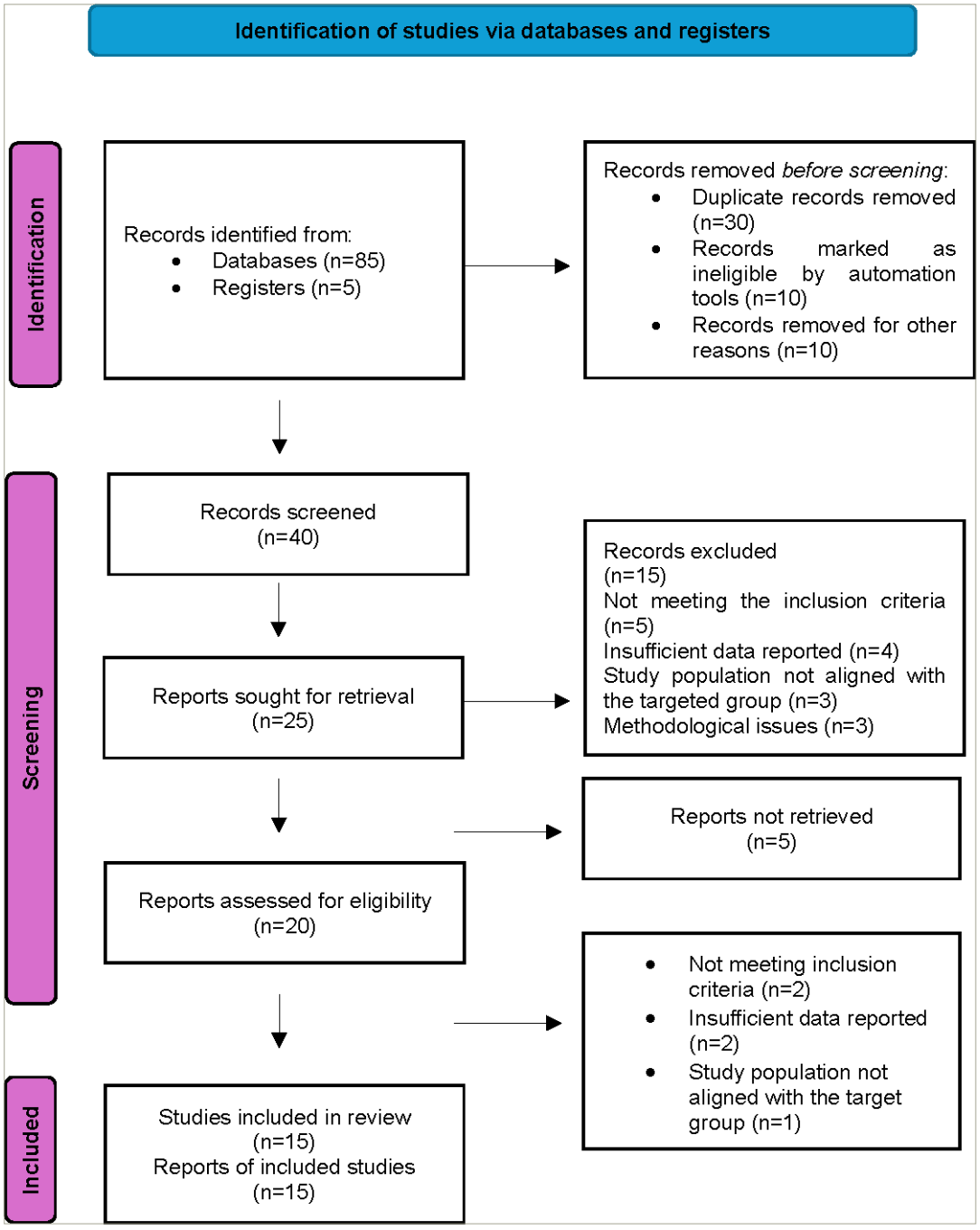
for the study selection, as illustrated in *Figure 2*. These identified studies assessed CBPR interventions aimed at middle-aged women, specifically for decreasing CVD risk factors and increasing healthy behaviours.

Included studies description

Among 15 research studies, most of them were conducted using pre- and post-test designs assessing changes in CVD risk factors that occurred following intervention implementing CBPR. Seven of the studies had pretest–posttest designs exclusively with the posttest-only group, while three studies had posttest-only non-equivalent control group designs. Of the remaining five studies, two were RCTs, two were quasi-experimental and one was a prospective cohort study. The longitudinal approach was seen in only one study in which participant outcomes were measured over time.

Sample populations were also different in the studies conducted. Out of these 15, 9 applied to marginalized groups, such as Arab-Australian women, Latinas, African Americans, South Koreans, South Asians and Native Americans. Four case series did not report the racial distribution, yet their investigations targeted participants from socioeconomically deprived or underrepresented groups. Another limitation is that most studies focused on middle-aged women, with seven of them specifically targeting this group to assess particular outcomes, rather than considering a broader age range. Studies that did not include middle-aged women as a primary focus were generally excluded. However, studies with broader populations were included if they provided relevant subgroup data or insights applicable to middle-aged women; this was also due to the limitation of studies targeting particularly 'middle-aged' women. In the summary of the mean age range in various studies, it was shown that it was often within the range of 40–65 years of age, thus

Figure 2: PRISMA flow chart



underlining the need to focus on CVD risks for this age segment. In all the studies designed to promote CVD risk reductions, the features of the sample and methodological approaches were different taking into consideration of targeted population and community needs (*Table 1*).[8–22]

Primary outcomes

CVD risk factor reduction:

- Body composition: Behavioural changes made a positive impact on weight and BMI, with middle-aged women showing weight loss in both Kim (2015) and Seguin et al. (2015) studies.[8,12]
- Cardiovascular health: Enhanced understanding of initial CVD symptoms and decrease in physiological and behavioural risk factors, including hypertension, obesity and physical inactivity.[11,13]
- Physical activity levels: More physical activity of Arab-Australian women and continued attendance at culturally appropriate programmes.[10,20]
- Behavioural changes: Better nutrition where there is a change from unhealthy foods, less consumption of fried foods and better stress management.[9,16]

Risk awareness and linkages:

- Enhanced identification, treatment and connection with primary care clinics for patients at increased risk of CVD.[22] Screening studies of asymptomatic persons to detect silent atherosclerosis and other risk determinants of CVD.[15]

Secondary outcomes

Psychosocial wellbeing:

- Mental health is also promoted as featuring less ageing anxiety, loneliness and social isolation among the participants.[11]
- Improved social integration or participation through the various programme models being implemented.[10,12]

Knowledge gains:

- Higher perimenopausal Latinas' and South Asian immigrants' knowledge of CVD risk factors and prevention is more effective.[9,21]
- An enhanced grasp of how diet and living accommodation factors affect CVD in culturally relevant stages.

Programme feasibility and acceptability:

- Community engagement and recruitment challenges and the supported recruitment approach: culturally diverse communities.[10,21]
- Low interception and moderate engagement of community-based interventions to the underrepresented group.[17,18]

Discussion

The findings of the chosen works depict the importance of CBPR interventions in addressing the key factors of CVD risks among multicultural people, especially middle-aged women. They further confirm the utility of CBPR in modifying physiological and psychosocial factors in health. This discussion/recap includes the research findings: a discussion of the advantages and the disadvantages of CBPR; and a situating of these findings within the goals of public health.

The studies are revealed to have positive changes in the CVD risk factors embracing hypertension, dyslipidaemia, overweight/obesity and physical activity. For example, in their cross-sectional studies, Kim and Seguin et al. found that obesity intervention in South Korea and the Pima Indian community successfully caused a decrease in BMI and weight among middle-aged women.[8,12] Like the above study, Lee and Kim established enhanced knowledge about cardiovascular wellbeing and decreased biological and behavioural precursors connected to obesity and sedentary living in a CBPR health education programme.[11] Similar to the above systematic review, Mendes et al. noted positive improvements in physical fitness, speed and flexibility of patients with type 2 diabetes through low-cost community exercise.[20]

Cultural adaptation is equally seen as a strategic factor in many interventions. Perimenopause Latina women showed improvement in the Mediterranean-Kaiser Permanente Set to Understand Comprehensively Cardiometabolic Risk within the Latin Population programme as Cortés et al. determined that culturally tailored programmes had a positive effect in improving the moderating knowledge of perimenopause Latinas.[9] Recruitment and intervention delivery were shown to be challenging by El Masri et al., but culturally adapted physical activity programmes were reported feasible and effective for Arab-Australian women, and the group physical activity levels were shown to have been enhanced.[10] These results corroborate Jayaprakash et al., who argued that culturally adapted interventions in South Asian immigrants enhanced the knowledge and readiness to change behaviour asserting cultural relevancy and engaging family members.[21]

It was evident that there has been successful implementation of nutrition education and physical activity in the interventions, resulting in improvements in dietary behaviour and a decrease in CVD risk factors. For instance, Lee and Kim and Scarinci et al. showed that such programmes lowered systolic and diastolic blood pressure effectively.[11,16] Low cholesterol diets and those that are culturally adapted were associated with cholesterol reduction, as indicated in the works of Cortés et al. and Jernigan et al.[9,14] These observations re-emphasize the need to couple dietary intervention with cultural competencies to ensure long-term healthy behaviour change.

They also included the psychosocial domain of interventions targeting person, population, place and process aspects of CBPR. By use of stakeholders' engagement, Lee and Kim showed that ageing anxiety, loneliness and social isolation decreased, and Paschal et al. and Sidebottom et al. showed that mental health and social connections improved.[8,11,17,18] These outcomes show that whereas CBPR studies the physiological and psychological health impact of interventions, programmes promote long-term support for improved health.

A major thematic area that was identified was self-management as a principal component of effective and efficient CBPR programmes. In their study, El Masri et al. stressed the importance of peer activity as more participants feel motivated and own their change, which is why, after the intervention, people will continue supporting healthier habits.[10] Sidebottom et al. also addressed issues of community engagement as the key to the performance of the Heart of New Ulm programme.[17]

Compared with traditional health campaigns, CBPR does not only focus on the change in individuals' behaviour but also regarding healthy food access, physical activity and education structures. Jernigan et al. and Paschal et al. highlighted how CBPR was used to tackle some

Table 1: Insights into community-based participatory research cardiovascular disease, middle-aged women[8–22]

S. no.	Author name and year	Type of study	Participant age	Participant race	Aim of study	Key findings
1.	Kim, 2015[8]	A one-group pretest–posttest design was used	35 middle-aged women	Chungcheongnam-Do (South Korea)	The study aimed to determine the effects of a community-based participatory programme on obese middle-aged women	The community-based participatory obesity programme by public health centres is considered to be effective
2.	Cortés et al., 2021[9]	Randomized repeated measures study design	80 perimenopause Latinas (aged 40–55 years)	USA	The specific aim of this study is to assess the potential and preliminary effectiveness of a complex intervention to address CVD risk in perimenopause Latinas	This study can contribute to significantly the gains of knowledge regarding the risk of CVD among perimenopause Latinas as well as the effects of behavioural treatment interventions to reduce the risk of CVD in this vulnerable population
3.	El Masri et al., 2021[10]	A single-group pretest–posttest design	22 Arab-Australian women aged 35–64 years	Arab-Australian	The main objective of the present work was to assess the viability of a 12-week culturally endorsed physical activity intervention programme for Arab-Australian women	The results emerging from this study pointed to some of the recruitment and delivery factors that can used as a guide in designing physical activity interventions for Arab-Australian women
4.	Lee and Kim, 2024[11]	Non-equivalent, control group, pre–post design	59 middle-aged women (50–64 years)	South Korea	The purpose of this study was to synthesize and assess the intervention of a CCVD-PP based on the self-determination theory model of health behaviour changes in middle-aged women in the community	This study increases awareness of the early symptoms of CVD; enhances health behaviour practices and improves mental wellbeing by reducing ageing anxiety, loneliness and social isolation
5.	Seguin et al., 2015[12]	Randomized controlled efficacy trial	40 years and older	USA	To assess the effectiveness of a community-based programme designed to help Pima Indians lose weight and adopt healthier behaviours to lower their risk of CVD in rural environments	Primary outcomes include weight reduction and improved diet and physical activity behaviours; the programme also fosters social support and civic engagement for sustained health improvements
6.	Yang et al., 2016[13]	Quasi-experimental, two-group pre–post study	65 years and older	Low-income Korean elderly	This article aims at assessing the effectiveness of a community-based CVD-PP for low-income elderly with hypertension in South Korea	Significant improvement in self-efficacy and health behaviour among intervention participants; reduced diastolic blood pressure and cardiovascular risk factors in the intervention group
7.	Jernigan et al., 2018[14]	CBPR	Adults (≥18 years)	Native American populations (Chickasaw and Choctaw Nations)	To create healthy retail environments for Native American populations in rural Oklahoma to increase their consumption of fruits and vegetables	Limited access to healthy foods in tribal convenience stores contributes to diet-related health disparities; environmental interventions tailored to tribal contexts show promise
8.	Nasir et al., 2021[15]	Prospective cohort study	40–65 years	Predominantly White (85.6%), Hispanic/Latino (47.4%)	To distinguish the subclinical coronary atherosclerosis and the presence of traditional risk factors in middle-aged asymptomatic men and women, 40–65 years old	MiHeart enrolled 2,459 participants; 72% were overweight/obese; median 10-year atherosclerotic CVD risk was 4%; the majority had no prior clinical CVD
9.	Scarinci et al., 2014[16]	Community-based, group RCT	45–65 years	African American women	To assess the effectiveness of a culturally appropriate intervention to change dietary behaviour and exercising practices targeting rural Alabamians	The intervention improved healthy eating behaviours, with sustained reductions in fried food consumption and increased fruit/vegetable intake over 24 months; physical activity improvements were not sustained
10.	Sidebottom et al., 2021[17]	Retrospective cohort design	Adults (40–79 years)	Predominantly White (98%)	To assess involvement in HONU, a CVD prevention programme in a rural community	HONU interventions engaged 44% of adult residents; participants were older, predominantly female, married, overweight/obese and had lower smoking/diabetes prevalence
11.	Paschal et al., 2020[18]	CBPR cross-sectional study	Middle-aged and older adults (≥45 years)	African American adults, primarily female	To determine the prevalence of food insecurity, and contributing factors in a sample of African American adults in Alabama using CBPR	Food insecurity was high (56.8%), significantly associated with urban residency, age ≥65 years, living alone and not having a spouse/partner; community involvement enhanced engagement and survey relevance
12.	Leh and Saoud, 2020[19]	CBPR	18 years and older	Arab American	To examine the nature and extent of Arab Americans' perception of healthcare and current approaches to delivering culturally appropriate healthcare	Identified themes: delays in seeking care, cultural values necessitating congruent care, mistrust of U.S. healthcare and need for culturally tailored health strategies

Continued

Table 1: Continued

S. no.	Author name and year	Type of study	Participant age	Participant race	Aim of study	Key findings
13.	Mendes et al., 2016[20]	Non-experimental pre–post evaluation study	55–75 years old (mean: ~62.92 years)	Not specified	To evaluate community-based exercise programmes in middle-aged and elderly patients with type 2 diabetes in the improvement of physical fitness	Significant improvements in aerobic fitness, muscle strength, agility/balance and flexibility were observed using low-cost, community-based exercise strategies
14.	Jayaprakash et al., 2016[21]	Qualitative process evaluation	30–60 years (average: 50 years)	South Asian	To assess the practicality and effectiveness of culturally appropriate CVD prevention lifestyle change programmes for South Asian immigrants	Community-based culturally tailored interventions in trusted settings improved knowledge, motivation and behaviour change but required more family involvement and reduced participant burden
15.	Pakhare et al., 2021[22]	Community-based cohort study	Adults aged 30+	Not specified	To assess the antecedents and factors inhibiting non-referral to primary care facilities for CVD control	CHW-led strategies improved linkage to care, but barriers such as age under 45, low economic status, distance from facilities and late CHW engagement reduced effectiveness

CBPR = community-based participatory research; CCVD-PP = cerebrovascular disease prevention programme; CHW = community health worker; CVD = cardiovascular disease; HONU = Heart of New Ulm; RCT = randomized controlled trial.

of the food deserts, a challenge that led to a reduction of the access of the vulnerable population to healthy foods.[14,18] From the various studies, peer-led networks provided social support, motivation and action planning especially for women being juggle income-generating activities and/or child care. Additionally, the use of locally available facilities, for instance, community clinics or religious institutions, brought the programme closer to reality and replicability.

CBPR was also an advocacy platform and sought to address the social issue of inequality and unfairness in the provision of health facilities. In the course of studies like Leh and Saoud (2020) and Pakhare et al. (2021), the participants demonstrated enhancement of self-advocacy and resource acquisition, which is in concordance with the goals of public health that focus on the elimination of the gap.[19,22] Indeed, the results of this study indicate that CBPR can help communities and reduce structural factors that affect health disparity.

Addressing social determinants of health

CBPR expands on assuming personal change to targeting the structural determinants and fundaments that affect a community, such as access to healthy food and physical activity environments, as well as education resources. CBPR of course enables local solutions to these challenges due to its involvement of community stakeholders in intervention designs and implementation. Moreover, in the analysed papers, the peer-led support networks were highlighted as one of the most important enablers of behaviour change. These networks offered social encouragement, commitment and incentives, especially for those women with economic and caregiving responsibilities. Furthermore, strategies that were implemented with community participation, including ownership of a local clinic or a religious facility, improved the feasibility of the assembly. This article also pointed to the advocacy function of CBPR in the promotion of participants' health. Most women pointed out improved self-commerce decision-making and resource-seeking as being in congruence with CBPR and public health promotion of equity and social justice.

Limitations and barriers

This article has several limitations. While it focuses on middle-aged women, some of the included studies examined broader adult populations. These studies were retained when their findings were relevant to middle-aged women, either through subgroup analyses or applicability to cardiovascular risk factors in this demographic. However, future research should prioritize age-specific studies for greater precision.

Additionally, variability in study designs, sample populations and intervention methods limits direct comparison. The reliance on self-reported data in some studies introduces potential biases, and the lack of long-term follow-ups makes it difficult to assess the sustainability of observed benefits.

Finally, potential publication may overrepresent positive findings. Addressing these limitations in future research will help refine CBPR strategies and strengthen their evidence base for CVD prevention in middle-aged women.

Recommendations for practice and policies

CBPR should be fully adopted as one of the best practices in the management of public health programmes to increase cultural competence and community engagement. Political leaders should support programmes aimed at strengthening the ability of public health workers and communities to engage in cross-cultural participatory approaches. More research funding is therefore necessary to strengthen and scale up CBPR interventions, especially in low-income settings as well as in favour of programmes with sufficient proportions of community participation and cultures. The following steps are going to encourage appropriate health interventions from the future point of view as well as in reasonable consistency with the affordance of other nations.

Conclusion

This article aims to compare the effectiveness of CBPR interventions for decreasing the risk of CVD among middle-aged women and particularly socioeconomically disadvantaged groups. As this article notes, CBPR combines community engagement and cultural adaptation to redress the distribution of health and enhance the communities' capacity. The primary findings of this article include moderation in CVD risk-factor improvement in the Dartmouth Primary Care Collaborative, forum-based cultural interventions, higher institution-based participation and better outcomes through hospitality and nutrition workshops, as well as peer-led programmes. Compared with difficulties faced as recruitment and uneven deliveries where CBPR has limitations, its key advantages are that it fosters community ownership, inclusiveness and flexibility. CBPR has been identified as a best practice, and policymakers should ensure that there is adequate funding and training of researchers engaged in

this type of research. Future research should strive towards greater use of standardized measurements, dealing with practical issues and use of longitudinal designed investigations to maintain the long-term overall health advantages of the treatment. This article also previews how CBPR creates a revolutionary paradigm towards eliminating health disparities and promoting justice healthcare. ❑

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