



The Effect of Community-Based Intervention on Controlling Blood Pressure for Hypertension Patient: A Systematic Review

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Abstract. Hypertension is a significant risk factor for death caused by cardiovascular disease. Collaboration with the community through community-based intervention is one of the actions to reduce the incidence of hypertension. Although many community-based intervention studies have been carried out to treat non-communicable diseases, their effectiveness in improving blood pressure in hypertensive patients has not been widely studied. Aim: This study aims to discuss the effect of community-based intervention on controlling blood pressure in hypertensive patients. Methods: The literature search was carried out from May-June 2021 using Google Scholar, PubMed, and ScienceDirect search engines with a search year limit of 2009–2021. Community-based intervention is defined as “intervention that involves the community to adjust intervention programs in the community by focusing on changing individual behavior to reduce disease risk in the population”. The search was limited to English-language reports. The keywords used were “community-based intervention”, “hypertension”, and “blood pressure”. The inclusion criteria used were randomized controlled trials (RCTs), observational studies, and interventional studies with full text in English. The literature search focused on hypertensive patients, with the primary outcome being changed in blood pressure after the intervention. The exclusion criteria used were a review, systematic review, or meta-analysis and non-full text in English. Results: Of the 186 articles that met the search criteria, 11 studies met the inclusion criteria. Sex, type of community (urban or rural), education status, monthly per capita income, and number of lost to follow-up can affect controlling blood pressure during the community-based intervention study. Conclusion: Community-based intervention can be effective in controlling blood pressure in hypertensive patients.

Keywords: Blood Pressure · Community-Based Intervention · Hypertension · Non-Communicable Disease

1 Introduction

Cardiovascular disease is the leading cause of death globally. 16.7 million deaths in 2010 were due to cardiovascular disease and it is projected to increase to 23.3 million

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by 2030 [1]. One of the main risk factors for cardiovascular disease is the incidence of hypertension which is a predominant factor for many cardiovascular diseases such as heart failure, coronary heart disease, chronic kidney disease, and stroke [2]. It is estimated that 1.39 billion adults worldwide have hypertension, of which 1.04 billion are residents of lower-and middle-income countries and 349 million are from high-income countries [3].

Hypertension causes a large economic burden through the cost of treatment to control blood pressure and the deterioration of the patient's clinical condition [4]. The economic impact of hypertension and related cardiovascular diseases also affects the economic level of individuals, households, society, and health institutions [5]. The low level of adherence to control risk factors, especially at the secondary prevention level, plays a role in the high incidence of cardiovascular disease and a worsening outcome prognosis [6]. Therefore, a comprehensive intervention by inviting a wider population towards a healthier lifestyle is needed to reduce the risk of cardiovascular disease [7].

The use of community-based health services has become an alternative in handling non-communicable diseases [8]. Community-based healthcare programs are the main tool to reduce CVD risk by paying attention to prevention aspects at the community level by focusing on smoking habits, high blood pressure, physical activity, and unhealthy diets using multifactorial intervention components [9]. Community-based programs have the benefits of fighting root causes of disease and preventing new cases, have an influence on various other diseases with common risk factors, and can reach people who do not have access to adequate health services [9].

Community-based interventions have attracted the attention of policy stakeholders on global health issues following the success of community-based intervention program known as the 'North Karelia Project' in Finland that ran from 1969 and 1971 to 2011 [10]. The project, which started in the province of North Karelia in eastern Finland as a 5-year project before becoming Finland's national program, recorded a reduction in deaths from coronary heart disease by 84% in North Karelia and 82% in Finland [10]. The project was also able to reduce blood pressure in the population of North Karelia from 149/92 mmHg for men and 153/92 mmHg for women in 1972 to 135/84 mmHg and 129/79 mmHg in 2012 [11]. With the increasing incidence of cardiovascular disease and hypertension as the main risk factors for cardiovascular disease, community-based interventions can be an option in efforts to prevent cardiovascular disease by reducing related risk factors, one of which is hypertension [12]. However, there are many challenges related to community-based interventions for the management of hypertension and cardiovascular disease. This is due to social, cultural, and economic diverse contexts of various studies conducted in many countries [13]. Thus, it is necessary to study the effectiveness of community-based interventions to control blood pressure in hypertensive patients in various countries. The aim of this study is to discuss the effect of community-based interventions in 11 countries to control blood pressure in hypertensive patients.

2 Method

2.1 Search Strategy

This review was written following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The literature search was carried out by using Google Scholar, PubMed, and Science Direct search engines with a search duration from May to June 2021. The keywords used were “community-based intervention”, “hypertension”, and “blood pressure”. The eligibility of the results is reviewed.

2.2 Study Selection

From the research that included in this review, community-based intervention, as defined by McLeroy et al. (2003), is an “intervention that involves the community to adjust intervention programs in the community by focusing on changing individual behavior to reduce disease risk in the population” [14]. Therefore, intervention on health education and promotion was excluded in this review.

The search was limited to studies were published as full text in English from 2009 to 2021. The inclusion criteria used were interventional studies (eg randomized controlled trials (RCTs), clinical trials) or observational studies. The exclusion criteria used were review type study (eg. Literature review, systematic review) or meta-analysis, and published in non-full text. The literature search focused on hypertensive patient samples with the main reported outcome changing in blood pressure after the intervention.

2.3 Data Extraction and Risk of Bias Assessment

The authors took research data from studies which included author and year of publication, type of study, type of intervention, location, number of participants, gender, the mean age of participants, duration of the study, changes in blood pressure, and the results of the analysis of significance. In the event of an error or discrepancy, a senior researcher (MDP) assists in resolving the issue.

3 Result and Discussion

3.1 Study Selection

Based on searches with three search engines (Google Scholar, PubMed, and ScienceDirect), 186 studies were identified to use the “community-based intervention” with a matching definition. After the screening process, 16 articles met the inclusion criteria (not a review, systematic review, or meta-analysis, and full-text). Several studies were found not to include changes in blood pressure before and after the intervention. At the end of the search, 11 studies met the inclusion criteria. Figure 1 shows the search process.

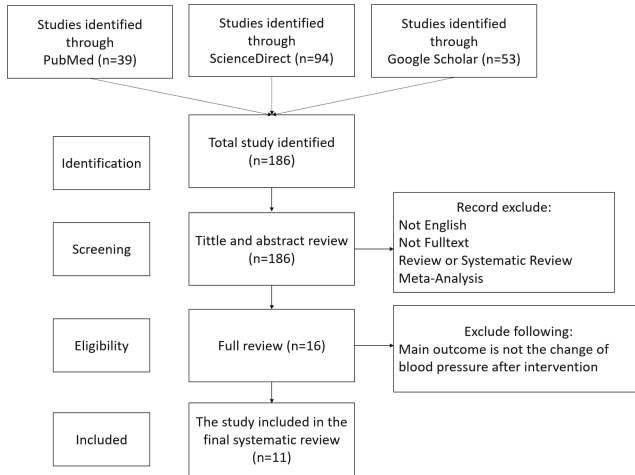


Fig. 1. PRISMA flowchart of literature search

3.2 Study Characteristic

Articles related to the study came from various countries with a sample size between 44 and 6575 participants. The total number of participants was 17,008 ages 37 to 74. The study was conducted with training by health workers for blood pressure checks, from monitoring to controlling with pharmacological or non-pharmacological approaches. From 11 studies, it was found that 5 studies were randomized studies, 4 studies were pre-post intervention studies without control, 1 study was a quasi-experimental study, and 1 study was observational. A description of the study characteristics is presented in Table 1.

3.3 Outcome Measurement

Outcome measurement was carried out by evaluating the significant changes in systolic blood pressure (SBP) and diastolic blood pressure (DBP) before and after the intervention. One study did not include DBP data before and after the intervention. Another one showed no significant change before and after the intervention. One study showed no significant change in SBP, and another study showed no significant change in DBP. The length of the intervention period varied from 6 months to 3 years. We found that several factors can affect the control of blood pressure in community-based intervention: sex, type of community (urban or rural), education status, monthly per capita income, and lost to follow-up. Details of the changes in SBP and DBP and the significance of each study are described in Table 2.

Table 1. Characteristics of included studies

Reference number	Author, year	Type of study	Type of intervention	Location	Number of participants (Male/ Female)	Mean of Age
[15]	Jafar et al. (2009)	Randomized controlled trial	No intervention (control), trained by general practitioner (GP), trained by home health education (HHE), trained by general practitioner and home health education (GP + HHE)	Pakistan	1341 (501M/840F)	53.8 ± 11.5
[16]	Truncali et al. (2010)	Pre-post intervention without control	Educate and train volunteers - run blood pressure monitoring program	USA	105 (31%M/69%F)	74.2 ± 8.9
[17]	Thankappan et al. (2013)	Pre-post intervention without control	Education for reducing risk factor and regular medication of hypertension and monitoring blood pressure	India	4627 (N/A)	47.8 ± 12.2
[18]	Johnson et al. (2015)	Randomized controlled pilot study	Education intervention with toolkit such as blood pressure cuff, meal measurement control plate, and education binder	USA	54 with 27 (11M/16F) in control group and 27 (12M/15F) in intervention group	59 in control group and 58.5 in intervention group
[19]	Lu et al. (2015)	Randomized-non blinded trial	Self reading learning (first group), Regular lecture (second group), Interactive workshop (third group)	China	360 (141M/219F)	53.4 ± 7.9 (first group), 55.9 ± 7.8 (second group), 53.8 ± 9.5 (third group)
[20]	Sahli et al. (2016)	Quasi-experimental design	Control group and intervention (promotion of healthy diet, physical activities, and control of tobacco use) group	Tunisia	940 (271M/669F in control group and 406M/534F in intervention group)	38.61 ± 13.73 in control group and 37.20 ± 13.22 in intervention group

(continued)

Table 1. (continued)

Reference number	Author, year	Type of study	Type of intervention	Location	Number of participants (Male/ Female)	Mean of Age
[21]	Schwalm et al. (2019)	Randomized controlled trial	Control group and with intervention group (treatment and counseling of cardiovascular disease risk factor, free antihypertensive and statin medication under supervision of physicians, and support treatment for medication adherence and healthy behavior)	Colombia and Malaysia	1371 (604M/767F) with 727 in control group (395M/332F) and 644 in intervention group (372M/272F)	65.8 ± 9.7 (control group), 65.1 ± 9.1 (intervention group)
[22]	Zheng et al. (2019)	Pre-post intervention without control	Training physicians, nurse, and public health doctors for screening, treatment and management, follow-up visit and health education for hypertension	China	6575 (2679M/3896F)	64.6 ± 10.4
[23]	Jafar et al. (2020)	Randomized controlled trial	Control and monitoring blood pressure, home health education, and physicians training in blood pressure monitoring, management of hypertension, and use of checklist	Bangladesh, Pakistan, Sri Lanka	1315 (491M/824F) in control group and 1330 (453M/877F) in intervention group	59.0 ± 11.8 in control group and 58.5 ± 11.2 in intervention group
[24]	Alkaff et al. (2020)	Observational retrospective control study	<i>Prolanis (Program Pengelolaan Penyakit Kronis/ Chronic Disease Management Program)</i>	Indonesia	44 (17M/27F)	61.59 ± 6.57
[25]	Macedo et al. (2021)	Uncontrolled before-and-after study	Home visits by community health workers, health worker training, and point-of-care monitoring of blood pressure	Brazil	276 (91/185F)	N/A

Table 2. Result of included studies

Author, year	Duration	Results of Blood Pressure Change (mmHg)				Significance
		SBP Before	SBP After	DBP Before	DBP After	
Jafar et al. (2009)	2 years	151.7 ± 24.6	153.3 ± 24.6 (control), 151.8 ± 24.5 (HHE), 153.3 ± 24.62 (GP), 148.3 ± 24.7 (HHE + GP)	93.3 ± 13.0	95.5 ± 12.5 (control), 93.7 ± 12.9 (HHE), 92.9 ± 12.9 (GP), 91.1 ± 13.0 (HHE + GP)	0.45 (SBP) and 0.46 (DBP)
Truncali et al. (2010)	6 months	143.7 ± 19.3	-3.09	N/A	N/A	0.04
Thankappan et al. (2013)	6 years	126.2 ± 18.0	128.6 ± 20.7	80.9 ± 10.9	75.4 ± 11.5	<0.001 (SBP) and <0.001 (DBP)
Johnson et al. (2015)	6 months	135 (control) and 143 (intervention)	131 (control) and 120 (intervention)	85 (control) and 90 (intervention)	81 (control) and 77 (intervention)	0.035 (SBP) between control and intervention group and 0.092 (DBP) between control and intervention group
Lu et al. (2015)	2 years	140.2 ± 17.9 (first group), 143.9 ± 16.2 (second group), 148.7 ± 21.5 (third group)	139.4 ± 16.7 (first group), 134.8 ± 15.9 (second group), 133.7 ± 13.6 (third group)	86.7 ± 11.2 (first group), 85.8 ± 10.7 (second group), 90.7 ± 16.5 (third group)	85.2 ± 10.66 (first group), 80.4 ± 11.2 (second group), 81.2 ± 8.0 (third group)	0.014 (SBP) and 0.001 (DBP)
Sahli et al. (2016)	3 years	129.7 ± 17.8 (control), 132.4 ± 19.2 (intervention)	130.4 ± 17.9 (control), 130.6 ± 17.7 (intervention)	78.1 ± 10.8 (control), 78.7 ± 11.7 (intervention)	76.7 ± 11.0 (control), 76.9 ± 11.1 (intervention)	0.380 (SBP) and 0.007 (DBP) in control group and <0.001 (SBP) and 0.035 (DBP) in intervention group

(continued)

Table 2. (continued)

Author, year	Duration	Results of Blood Pressure Change (mmHg)				Significance
		SBP Before	SBP After	DBP Before	DBP After	
Schwalm et al. (2019)	12 months	151.8 ± 15.6 (control), 152.1 ± 15.4 (intervention)	−9.7 (−12.1 to −7.3) (control), − 21.1 (−23.7 to −18.6) (intervention)	85.3 ± 11.9 (control), 84.7 ± 12.0 (intervention)	−2.9 (−4.4 to −1.4) (control), − 6.9 (−8.5 to −5.3) (intervention)	<0.0001 (SBP) and 0.0004 (DBP)
Zheng et al. (2019)	1 year	145.6 ± 14.4	141.1 ± 13.4	92.2 ± 9.1	90.3 ± 8.3	<0.0001
Jafar et al. (2020)	24 months	144.7 ± 21.0 (control), 146.7 ± 22.4 (intervention)	−3.87 (control) and −9.04 (intervention)	87.8 ± 13.8 (control), 89.1 ± 14.7 (intervention)	−3.24 (control) and −6.07 (intervention)	<0.001 (SBP) and N/A (DBP)
Alkaff et al. (2020)	1 year	130 (120–140)	130 (120–140)	80 (87.5)	80 (80–90)	0.063 (SBP) and 0.046 (DBP)
Macedo et al. (2021)	6 months	162.2	148.8	90.0	84.2	0.021 (SBP) and <0.001 (DBP)

3.4 Discussion

This review focuses on reducing blood pressure using community-based interventions. The heterogeneity of the studies includes several types of interventions that drive the role of the community, study design, study period, participants, and study target locations. The study target in the form of lowering blood pressure is the target of controlling hypertension to reduce the risk of the incidence of cardiovascular diseases such as myocardial infarction, congestive heart disease, stroke, and sudden death [26].

The challenges of controlling hypertension are low rates of patient medication adherence, failure of physicians to initiate therapy early, and poor patient-physicians communication which contributes to the failure to achieve blood pressure targets [27]. Hypertension management is also associated with modifiable risk factors that have a strong influence [28]. Increasingly complex social developments could be the challenge of controlling hypertension, which is influenced by various factors such as health care (infrastructure, access, and quality) and social determinants (urbanization, poverty, low literacy levels, gender and racial discrimination) [29]. Therefore, a more effective blood pressure control strategy in hypertension is needed and the healthcare system in management of blood pressure control should be supported [29].

The community-based intervention has been recommended to treat hypertension at the community level with a wider scope to address various undetected risk factors for cardiovascular disease [12]. Several interventions in the community such as healthy lifestyle campaigns (diet modification and increased physical activity), reporting hypertension over time, and providing community-based support in the hypertension group have been

recommended to prevent and control the incidence of hypertension [30]. Community engagement in interventions can address a wider range of social and environmental factors than the existing primary health care system [30]. Several community-based intervention studies conducted in China show the effectiveness of hypertension treatment which can also be implemented in low resource and middle-income countries (LCIMs) [31]. In addition, the economic impact analysis shows that Community-based intervention is an intervention that does not cost a lot of money; therefore, it could save long-term care costs [32]. These findings from this review support the approach to hypertension care through community-based intervention to reduce the risk of cardiovascular disease.

The community-based intervention in this review is to address the challenges of controlling blood pressure in hypertension by strengthening the health system, which includes effective drug use, tracking progress in control, patient empowerment, and engagement with the patient's community [33]. Community-based intervention for blood pressure control in hypertensive patients can overcome the multi-level barrier to hypertension control by integrating the role of the community and active engagements of patients in lifestyle modification and medication adherence [34].

Community-based interventions have the advantage of overcoming patient's barriers to health services access, which could be a challenge for patients if not receiving follow-up care in cases of chronic diseases such as hypertension [35]. Several studies show the role of intervention by mobilizing the community to overcome these barriers and this has an impact on blood pressure improvement outcomes [36, 37]. In addition, community involvement in health activities can reduce hospital admissions, improve risk factor habits and quality of life so that it can encourage community health improvements [38]. As a result, community health outcomes have improved due to the continued control of hypertension through the active role of community members who participated in the health care program [39, 40].

One limitation of our review is that we only used McLeroy et al.'s interpretation of community-based intervention (2003). The reason was because there seemed to be no rigid definition of community-based intervention, so we only included interventions that empowered the role of the community in controlling blood pressure [14]. As a consequence, the type of community-based intervention was missed because of the mismatch between the definition and the search. Another limitation is that we only searched literature in English-language reports, thereby increasing the risk of bias due to the limitations of the study search. Although this review has several limitations, our study also had some strengths. The collection of data from various countries and the duration of the study could serve as an evidence-based rationale for the management of hypertension at the population level in public health policy.

4 Conclusion

Community-based intervention is effective in controlling blood pressure in a wider population and in reducing the risk of cardiovascular disease related to hypertension. However, further studies are needed to investigate a more measurable intervention methodology so that blood pressure management of hypertensive patients becomes more optimal.

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References

1. Bansilal S, Castellano JM, Fuster V. Global burden of CVD: Focus on secondary prevention of cardiovascular disease. *Int J Cardiol.* 2015;201:S1–7.
2. Fuchs FD, Whelton PK. High Blood Pressure and Cardiovascular Disease. *Hypertension.* 2020;(Cvd):285–92.
3. Mills KT, Stefanescu A, He J. The global epidemiology of hypertension. *Nat Rev Nephrol [Internet].* 2020 Apr 5;16(4):223–37.
4. Wierzejska E, Giernaś B, Lipiak A, Karasiewicz M, Cofta M. A global perspective on the costs of hypertension : a systematic review. *Arch Med Sci.* 2020;16:1078–91.
5. Gheorghie A, Griffiths U, Murphy A, Legido-Quigley H, Lamptey P, Perel P. The economic burden of cardiovascular disease and hypertension in low- and middle-income countries: A systematic review. *BMC Public Health.* 2018;18(1):1–11.
6. Lawlor ER, Bradley DT, Cupples ME, Tully MA. The effect of community-based interventions for cardiovascular disease secondary prevention on behavioural risk factors. *Prev Med (Baltim) [Internet].* 2018;114(October 2017):24–38.
7. Mc Namara K, Alzubaidi H, Jackson JK. Cardiovascular disease as a leading cause of death: how are pharmacists getting involved? *Integr Pharm Res Pract.* 2019;Volume 8:1–11.
8. Norris KC. Community-based Approaches to Cardiovascular Health. *Fam Community Health [Internet].* 2017 Jul;40(3):181–2.
9. Kaczorowski J, Del Grande C, Nadeau-Grenier V. Community-based programs to improve prevention and management of hypertension: Recent canadian experiences, challenges, and opportunities. *Can J Cardiol.* 2013;29(5):571–8.
10. Puska P. Why Did North Karelia—Finland Work?: Is it Transferrable? *Glob Heart [Internet].* 2016;11(4):387–91.
11. Vartiainen E. The North Karelia Project: Cardiovascular disease prevention in Finland. *Glob Cardiol Sci Pract.* 2018;2018(2).
12. Ferdinand KC, Patterson KP, Taylor C, Fergus I V., Nasser SA, Ferdinand DP. Community-Based Approaches to Prevention and Management of Hypertension and Cardiovascular Disease. *J Clin Hypertens [Internet].* 2012 May;14(5):336–43.
13. Ali SH, Islam NS, Commodore-Mensah Y, Yi SS. Implementing Hypertension Management Interventions in Immigrant Communities in the U.S.: a Narrative Review of Recent Developments and Suggestions for Programmatic Efforts. *Curr Hypertens Rep.* 2021;23(1).
14. McLeroy KR, Norton BL, Kegler MC, Burdine JN, Sumaya C V. Community-Based Interventions. *Am J Public Health [Internet].* 2003 Apr;93(4):529–33.
15. Jafar TH, Hatcher J, Poulter N, Islam M, Hashmi S, Qadri Z, et al. Community-based interventions to promote blood pressure control in a developing country: a cluster randomized trial. *Ann Intern Med [Internet].* 2009 Nov 3;151(9):593.
16. Truncali A, Dumanovsky T, Stollman H, Angell SY. Keep on track: A volunteer-run community-based intervention to lower blood pressure in older adults. *J Am Geriatr Soc.* 2010;58(6):1177–83.

17. Thankappan KR, Sivasankaran S, Mini GK, Daivadanam M, Sarma PS, Khader A. Impact of a community based intervention program on awareness, treatment and control of hypertension in a rural Panchayat, Kerala, India. *Indian Heart J* [Internet]. 2013;65(5):504–9.
18. Johnson W, Ezeugwu C, Monroe D, Breunig IM, Shaya F. A pilot study evaluating a community-based intervention focused on the ishib impact cardiovascular risk reduction toolkit in African American patients with uncontrolled hypertension. *Ethn Dis*. 2015;25(2):162–7.
19. Lu CH, Tang ST, Lei YX, Zhang MQ, Lin WQ, Ding SH, et al. Community-based interventions in hypertensive patients: A comparison of three health education strategies. *BMC Public Health*. 2015;15(1):1–9.
20. Sahli J, Maatoug J, Harrabi I, Ben Fredj S, Dendana E, Ghannem H. Effectiveness of a Community-Based Intervention Program to Reduce Hypertension Prevalence among Adults: Results of a Quasi experimental Study with Control Group in the Region of Sousse, Tunisia. *Glob Heart* [Internet]. 2016;11(1):131–7.
21. Schwalm JD, McCready T, Lopez-Jaramillo P, Yusoff K, Attaran A, Lamelas P, et al. A community-based comprehensive intervention to reduce cardiovascular risk in hypertension (HOPE 4): a cluster-randomised controlled trial. *Lancet* [Internet]. 2019;394(10205):1231–42.
22. Zheng X, Xiao F, Li R, Yin D, Xin Q, Yang H, et al. The effectiveness of hypertension management in China: a community-based intervention study. *Prim Health Care Res Dev*. 2019;20:e111.
23. Jafar TH, Gandhi M, de Silva HA, Jehan I, Naheed A, Finkelstein EA, et al. A Community-Based Intervention for Managing Hypertension in Rural South Asia. *N Engl J Med*. 2020;382(8):717–26.
24. Alkaff FF, Sukmajaya WP, Intan RE, Salamah S. Effectivity of Indonesia chronic disease management program (Prolanis) to control hypertension and its comorbidities at primary health care. *Open Access Maced J Med Sci*. 2020;8:224–7.
25. Lemos Macedo JC, de Carvalho VCH dos S, Cortes TBA, Soares DA, Mistro S, Kochergin CN, et al. Community-Based Interventions to Improve the Control of Non-Communicable Diseases in Underserved Rural Areas in Brazil: A Before-and-After Study. *Front Pharmacol*. 2021;12(April):1–6.
26. Saiz LC, Gorricho J, Garjón J, Celaya MC, Muruzábal L, Malón M del M, et al. Blood pressure targets for the treatment of people with hypertension and cardiovascular disease. *Cochrane Database Syst Rev*. 2017;2017(10).
27. Parati G, Lombardi C, Pengo M, Bilo G, Ochoa JE. Current challenges for hypertension management: From better hypertension diagnosis to improved patients' adherence and blood pressure control. *Int J Cardiol* [Internet]. 2021;331:262–9.
28. Carey RM, Muntner P, Bosworth HB, Whelton PK. Prevention and Control of Hypertension. *J Am Coll Cardiol* [Internet]. 2018 Sep;72(11):1278–93.
29. Chow CK, Gupta R. Blood pressure control: a challenge to global health systems. *Lancet*. 2019;394(10199):613–5.
30. Karwalajtys T, Kaczorowski J. An integrated approach to preventing cardiovascular disease: Community-based approaches, health system initiatives, and public health policy. *Risk Manag Healthc Policy*. 2010;3:39–48.
31. Lu Z, Cao S, Chai Y, Liang Y, Bachmann M, Suhrcke M, et al. Effectiveness of interventions for hypertension care in the community - A meta-analysis of controlled studies in China. *BMC Health Serv Res* [Internet]. 2012;12(1):1.
32. Zhang D, Wang G, Joo H. A Systematic Review of Economic Evidence on Community Hypertension Interventions. *Am J Prev Med* [Internet]. 2017 Dec;53(6):S121–30.

33. Patel P, Ordunez P, DiPette D, Escobar MC, Hassell T, Wyss F, et al. Improved Blood Pressure Control to Reduce Cardiovascular Disease Morbidity and Mortality: The Standardized Hypertension Treatment and Prevention Project. *J Clin Hypertens* [Internet]. 2016 Dec;18(12):1284–94.
34. Mills KT, Obst KM, Shen W, Molina S, Zhang HJ, He H, et al. Comparative effectiveness of implementation strategies for blood pressure control in hypertensive patients: A systematic review and meta-analysis. *Ann Intern Med*. 2018;168(2):110–20.
35. Starbird LE, DiMaina C, Sun C, Han H. A Systematic Review of Interventions to Minimize Transportation Barriers Among People with Chronic Diseases. *J Community Health* [Internet]. 2019 Apr 11;44(2):400–11.
36. Wexler R, Elton T, Pleister A, Feldman D. Barriers to blood pressure control as reported by African American patients. *J Natl Med Assoc* [Internet]. 2009;101(6):597–603.
37. Legido-Quigley H, Naheed A, Asita De Silva H, Jehan I, Haldane V, Cobb B, et al. Patients' experiences on accessing health care services for management of hypertension in rural Bangladesh, Pakistan and Sri Lanka: A qualitative study. *PLoS One*. 2019;14(1):1–23.
38. Singh S, Srivastava A, Haldane V, Chuah F, Koh G, Seng Chia K, et al. Community participation in health services development: A systematic review on outcomes. *Eur J Public Health*. 2017;27(suppl_3):1–25.
39. Chimberengwa PT, Naidoo M. A description of community-based participatory research of hypertension awareness, prevention and treatment in a district of Matabeleland South Province, Zimbabwe. *African J Prim Heal Care Fam Med*. 2019;11(1):1–9.
40. Victor RG, Blyler CA, Li N, Lynch K, Moy NB, Rashid M, et al. Sustainability of Blood Pressure Reduction in Black Barbershops. *Circulation* [Internet]. 2019 Jan 2;139(1):10–9.

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