

**Community-Based Interventions for Managing Chronic Diseases in Malaysia:
Hypertension**

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Abstract

Background: Hypertension is a significant public health concern in Malaysia, contributing to the growing burden of chronic diseases. Despite its high prevalence, awareness, treatment, and control rates remain suboptimal, particularly among low-income and high-risk populations. Community-based interventions have emerged as an effective strategy for managing hypertension by promoting awareness, encouraging lifestyle modifications, and improving access to healthcare services. This study examines the impact of such interventions in Malaysia, highlighting their role in reducing hypertension-related health risks.

Methods and Materials: A retrospective review of existing research, case studies, and community-based intervention programs was conducted using data from sources such as NCBI and PubMed. The study analyzed the effectiveness of multicomponent interventions, including educational workshops, routine blood pressure screenings, and lifestyle modification programs. The project involved partnerships with healthcare professionals, community health workers, and local organizations to facilitate outreach and engagement. Pre- and post-intervention data were collected to assess changes in participant awareness, behaviors, and health outcomes.

Results: Findings indicate that community-based interventions significantly improve hypertension management by increasing health literacy, promoting healthier behaviors, and enhancing early detection. Educational programs led to a 40-60% increase in hypertension awareness, while lifestyle modification efforts resulted in a 20-30% reduction in systolic blood pressure over six months. Screening campaigns improved hypertension detection rates by 25-35%, and home monitoring programs enhanced medication adherence by 50%. However, challenges such as sustainability, cultural sensitivity, and healthcare system limitations remain barriers to long-term success.

Conclusion: Community-based interventions play a vital role in addressing hypertension in Malaysia by improving public awareness, facilitating early diagnosis, and encouraging lifestyle changes. Future efforts should focus on integrating these programs into the broader healthcare system to enhance sustainability and long-term impact. Strengthening community partnerships, expanding access to digital health initiatives, and addressing cultural barriers will be key to reducing the prevalence of hypertension and improving overall public health outcomes in Malaysia.

Keywords: Hypertension management, Community-based interventions, Public health awareness, Lifestyle modification, Health screenings

Project objectives:

1. To increase awareness among Malaysian communities of hypertension risk factors and preventive measures by organizing educational workshops, aiming for at least 300 participants in total
2. To encourage at least half of the participants to adopt healthier lifestyle choices, such as improved diet and increased physical activity, assessed through pre-intervention and post-intervention surveys.
3. To establish the relationship between the families of hypertensive patients and patients and between the hypertensive patients and their support groups.
4. To conduct routine blood pressure screenings for at least 500 community members, identify undiagnosed hypertension cases, and refer them for medical assistance.
5. Establish partnerships with at least three local health institutions and organizations to support the sustainability of hypertension management efforts and access additional resources.
6. To evaluate project effectiveness and the outcomes of each intervention by measuring the reduction in average systolic blood pressure among participants, aiming for a 5mmHg decrease after the interventions.

Methodology:

In order to achieve the stated objectives above, several methodologies will be used to outline the structured approach.

1. Community engagement will involve outreach to local stakeholders and potential participants through meetings, discussions, and promotional materials.
2. Design a comprehensive intervention program modeled after successful community health initiatives. This includes educational workshops, peer-led health screening events, and ongoing support sessions for behavioral changes,
3. Conduct a training program for selected community health workers, focusing on hypertension education, screening techniques, referral processes, and community outreach strategies.
4. Launch interventions over 6 months, utilizing community venues for workshops and screenings. Implementation will be guided by a timeline that ensures timely completion of each project phase.
5. Make sure to have enough essential resources, both material and human. This includes health screening equipment, educational materials, trained community health workers, health professionals for workshops, and volunteers for event support.

Research Methods:

Retrospective studies were done by reviewing the existing research, articles, and case studies on community-based interventions for hypertension management in Malaysia from NCBI and PubMed. Data analysis was done using statistical methods, analyzing pre-intervention and post-intervention data, focusing on the changes in participants' awareness, behaviors, and health outcomes related to hypertension management.

Timetable

- Week 1** - Mobilize community support and conduct stakeholder meetings
- Week 2** - Finalize project details and develop the intervention program outline
- Week 3** - Conduct a literature review and compile best practices; begin recruitment for community health workers
- Week 4** - Develop training materials and prepare for health worker training sessions
- Week 5** - Set dates for workshops and schedule health screening events; promote among community members
- Week 6** - Conduct training for community health workers; distribute educational materials to participants
- Week 7** - Launch educational workshops in the community, ensuring attendance is recorded
- Week 8** - Conduct initial health screenings and collect baseline data
- Week 9** - Continue workshops and distribute follow-up surveys for participant feedback
- Week 10** - Analyze the initial data collected from screenings and surveys
- Week 11** - Adjust interventions based on feedback; implement any necessary modifications
- Week 12** - Conduct follow-up health screenings and reassess participant knowledge and behavior changes
- Week 13** - Evaluate the overall project outcomes, compile results, and prepare reports
- Week 14** - Host a community event to celebrate achievements and share findings; seek ongoing support for continued initiatives

Section 1: Project Definition

Multicomponent community-based interventions for hypertension management in Malaysia are essential in addressing the growing burden of this chronic condition. This includes programs aimed at empowering people to manage their health conditions through education and support; this empowerment is called community-based interventions. These could involve lifestyle modification programs, health education, health screening, and support groups encouraging cultural shifts while providing community members with preventative care.

Chronic diseases, including heart disease, stroke, cancers, chronic respiratory diseases, diabetes, and mental disorders, now account for 47% of the global burden of disease and 60% of all deaths. In Malaysia, The World Health Organization (WHO) estimated that chronic diseases caused 71% of all deaths in 2002. According to the most recent

WHO health data overview for Malaysia, ischemic heart disease accounted for 20.6% of all deaths in 2019, followed by stroke (13.9%) and lower respiratory infections (11.3%).

Arterial hypertension is commonly referred to as high blood pressure or a blood pressure reading of 140/90 mmHg or higher. It is a significant global health issue and is a critical public health concern in Malaysia. Arterial hypertension is a chronic medical condition characterized by consistently elevated blood pressure in the arteries. This condition significantly increases the risk of cardiovascular diseases, strokes, and kidney failures.

Section 2: Project Scope

Several retrospective studies were made focusing on developing and implementing multicomponent interventions aimed at lowering the prevalence and enhancing the management of hypertension among Malaysian communities, particularly among high-risk populations. Through community engagement and education initiatives, the project seeks to raise awareness in order to prevent and control hypertension. This entails encouraging lifestyle modifications and increasing knowledge of the risk factors for hypertension.

To ensure the facilitation and continuity of the interventions, primary deliverables can be done by encompassing educational materials, workshops, lifestyle modification programs, routine health screenings, and partnerships with local health care support or training programs that primarily target adults aged 40 and above, especially those from low-income communities (B40) in urban areas like Kuala Lumpur. Focusing on culturally relevant strategies will enhance participation among diverse ethnic groups such as Malays, Chinese, and Indian communities.

Section 3: Project Rationale

The rationale for undertaking this project stems from the rising prevalence of hypertension in Malaysia, its substantial adverse effects on health, economic burdens, and the need for sustainable solutions. Hypertension is known as a significant risk factor for cardiovascular diseases, contributing to high mortality rates in Malaysia. It is estimated that approximately 30.3% of Malaysian adults are affected by hypertension, with lifestyle factors and demographic characteristics significantly influencing its prevalence.

Treatment, however, comes with significant financial expenditures, straining the healthcare systems due to direct and indirect expenses. Effective management strategies are needed to alleviate healthcare costs and improve patient outcomes. The perceived feeling of being well, the transportation cost and inconvenience, the fear of being reprimanded by the hospital workers, family obligations, and work responsibilities were common barriers to linking hypertensive individuals to standard primary care.

Despite the high prevalence, awareness, and treatment rates among hypertensive patients remain low. It has been reported that only about 15% of young adults with hypertension were aware of their condition. Among those aware, less than 50% were receiving treatment. Cultural perceptions regarding health and wellness may impact individuals' willingness to seek treatment. Younger individuals frequently view themselves as invulnerable to chronic diseases, which deters them from seeking preventive care. The other challenges also include healthcare system limitations, whereby the Malaysian healthcare system has historically focused on curative rather

than preventive care, leading to inadequate accessibility of hypertension management services, particularly for younger adults and those from lower-income backgrounds.

The rationale for implementing community-based interventions for hypertension includes addressing public health needs, enhancing accessibility by making available interventions in community settings that ensure broader reach and engagement, and encouraging sustainable behavior change, which empowers the communities and fosters long-term health improvements through lifestyle changes.

Section 6: Project Setting

Several interventions can be used to help people manage their hypertension. These include *educational workshops* that help people understand hypertension, its risks, and management strategies; *lifestyle modification* by encouraging dietary changes, physical activity, and weight management; *health screening campaigns* that offer routine blood pressure screenings at community centers, events, or rural areas to identify individuals who have not been diagnosed; and *home monitoring programs* that encourage individuals to monitor their blood pressure at home every day. These interventions can be carried out in several settings: ongoing programs (initiatives that run year-round), health awareness days (special events like World Hypertension Day), or regular screening events (organized monthly or quarterly at local health facilities) either in community health clinics, schools, and universities, or public venues.

The parties involved in achieving successful interventions in managing chronic diseases include healthcare professionals such as doctors, nurses, dietitians, and health educators; community health workers, which include trained people from the community to assist in outreach and education; local non-governmental organizations (NGOs) or partnering organization; volunteers; and the participants, which includes both individuals with hypertension and those who at risk, including family members.

Depending on the kind of intervention, success rates can differ. Participants in educational workshops frequently demonstrate a 40 - 60% gain in knowledge about hypertension management, while those who participate in lifestyle modification programs show a 20 - 30% reduction in their systolic blood pressure over six months. However, screening campaigns show an increased identification of hypertensive individuals by 25 - 35%, and home monitoring programs claim a 50% improvement in medication adherence.

Section 7: Project Relevance

The majority of Malaysians with chronic diseases are currently being treated at the primary care level. A higher percentage of patients with chronic medical conditions were treated at public primary care than at private clinics, according to data from the TPC project for predicting health service utilization (the data from the private clinics may not be representative due to the small number). Higher quality data is required to compare the public and private primary care sectors in terms of practice patterns, resource use, and morbidity patterns.

In terms of quality of care for chronic conditions, results from numerous primary care-based studies and audits have consistently shown that large proportions of these patients have not received effective therapy and do not achieve optimal disease control. A recent national survey on hypertension showed that only 34.6% were aware of their hypertensive status. Of the 32.4% taking anti-hypertensive medication, only 26.8% had their blood pressure under control.

Research indicates that multi-component interventions can lead to significant improvements in hypertension management. For instance, a study showed that community health worker-led programs reduced systolic blood pressure by an average of 9 mmHg over 24 months compared to usual care. Such interventions enhance blood pressure control and increase participants' knowledge and awareness about hypertension.

Over the past ten years, many excellent, evidence-based models for managing chronic diseases have been created. The Chronic Care Model (CCM) has been demonstrated to effectively alter healthcare practices for chronic diseases in numerous developed nations. The WHO gathered representatives from low- and middle-income countries to expand the Chronic Care Model (CCM) into the Innovative Care for Chronic Conditions (ICCC) Framework, which is more applicable and relevant to these countries. This occurs in response to the growing burden of chronic diseases in these nations and the subsequent need to assist these nations in changing their healthcare systems.

Based on the Chronic Care Model (CCM), the Community-Based Cardiovascular Risk Factors Intervention Strategies (CORFIS) program was introduced to manage hypertension in primary care settings in Malaysia. This program involved a multidisciplinary team approach, decision support through evidence-based guidelines and specialist input, a clinical information system for coordinating care and patient monitoring, patient empowerment and self-management support, and engagement with community resources, which successfully led to more significant reductions in systolic and diastolic blood pressure which then help the patient to achieve their target blood pressure.

Research has indicated that community-based interventions significantly improve health outcomes for individuals with hypertension. The effectiveness of interventions that can be seen are improved blood pressure control, increased health literacy, and greater healthcare utilization. Based on the studies show reductions in systolic and diastolic blood pressure among participants involved in community health programs; lifestyle modification programs focus on promoting healthier lifestyles through diet and exercise programs, including cooking classes, physical activity sessions, and campaigns addressing the importance of reducing sodium intake and maintaining a healthy weight; educational initiatives have led to higher levels of health literacy regarding hypertension; promoting a better understanding of self-management strategies and encourage individuals to seek medical assistance and adhere to prescribed treatment, ultimately lowering the incidence of complications associated with uncontrolled hypertension; and collaboration with local health authorities, non-governmental organizations, and community leaders ensures sustainability and enhance the effectiveness of health programs.

Despite their effectiveness, community-based interventions face several challenges, too. This includes sustainability, where ensuring continued funding and support for ongoing programs can be a bit challenging, particularly in low-resource settings; cultural sensitivity, in this term, interventions should be culturally appropriate and tailored to respond to diverse populations within Malaysia, which requires careful planning and engagement with local communities. Data collection and evaluation should be consistent and reliable for assessing the impact of interventions remains a challenge, hindering the ability to refine successful programs.

Several successful community-based interventions in Malaysia exemplify the effectiveness of multicomponent approaches:

1. **KOSPEN (Komuniti Sihat Pembina Negara):** This program deploys community health volunteers to conduct health screenings and provide education on lifestyle modifications and chronic disease management. KOSPEN has effectively raised awareness about hypertension and other non-communicable diseases.
2. **Better Health Program Malaysia:** This digital initiative engages community stakeholders to address obesogenic environments through educational efforts and community engagement. It utilizes digital tools to improve health knowledge and access to services among low-income populations in urban settings.
3. **University-led Interventions:** Collaborative programs involving local universities and health authorities have successfully implemented education and screening initiatives in urban and rural communities. These programs often analyze health outcomes and adjust strategies based on community feedback, ensuring relevance and effectiveness.

Conclusion

Arterial hypertension remains a prevalent health issue in Malaysia, necessitating urgent public health interventions. The Better Health Programme Malaysia aims to co-create and develop a community-based digital intervention for low-income populations to enable community stakeholders to address obesogenic environments and improve people's knowledge, attitudes, and practices related to noncommunicable disease (NCD) risk. In Malaysia, community-based interventions play a crucial role in addressing the public health challenge posed by this condition and in controlling chronic diseases, including hypertension. The initiatives can significantly enhance health outcomes and lessen the burden of chronic diseases in the population by implementing tailored interventions that focus on knowledge and behavior change, emphasizing education, support, and early detection.

The community-based interventions for hypertension prevention and control that show a significant reduction in hypertension cases in Malaysia include health education interventions through mass media campaigns such as posters, billboards, mailings, local newspapers, and social media influencers. Next, community-based screening strategies have the potential to reach high-risk populations and improve access to care. Other than that, home-based screening and diagnosis give a better linkage of hypertensive individuals, especially women and older adults, to the healthcare system. Health screening and referral to health facilities show an increased successful linkage and early visits for hypertension management.

These initiatives raise awareness, promote healthy behaviors, and facilitate early detection and treatment. However, it is critical to address barriers to sustainability, cultural relevance, and data collection to enhance their impact. Future efforts should focus on integrating community-based programs into the broader healthcare system to create a comprehensive approach to hypertension management, reducing its burden and improving overall health outcomes in Malaysia. By fostering a collaborative effort

among healthcare providers, policymakers, and community members, Malaysia can significantly advance its fight against hypertension.

Studies have shown that community-based interventions greatly enhance people's health with high blood pressure. Better blood pressure management, higher health literacy, and increased healthcare consumption are indicators of the efficacy of programs. Educational initiatives have resulted in higher levels of health literacy regarding hypertension, which promote a better understanding of self-management strategies and encourage individuals to seek medical assistance and adhere to prescribed treatment, ultimately lowering the incidence of complications associated with uncontrolled hypertension. Studies have shown reductions in systolic and diastolic blood pressure among participants in community health programs.

Notwithstanding their efficacy, community-based initiatives often encounter several difficulties. This includes cultural sensitivity, which refers to interventions that are culturally appropriate and tailored to respond to Malaysia's diverse populations, which calls for careful planning and engagement with local communities; sustainability, which involves making sure that ongoing programs receive funding and support, especially in low-resource settings; and data collection and evaluation, which is crucial because determining the impact of interventions is still tricky and makes it challenging to improve successful programs.

The combination of collective efforts in education, community engagement, and health services optimization epitomizes the goal of fostering healthier lifestyles among affected populations, ultimately contributing to the sustainability of public health initiatives in Malaysia, mainly in fighting against hypertension.

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