

PREVENTION OF HYPERTENSION AND DIABETES IN AN URBAN SETTING IN SOUTH AFRICA: PARTICIPATORY ACTION RESEARCH WITH COMMUNITY HEALTH WORKERS

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The project aimed to identify factors that contribute to hypertension and diabetes and to design and implement appropriate local interventions to prevent these noncommunicable diseases and promote healthy lifestyles.

This was a community-based participatory action research project in which researchers and community health workers (CHWs) were the main participants. The triple A approach to planning interventions was used, that is, the process of assessing the situation, analyzing the findings, and taking action based on this analysis. Both qualitative and quantitative methods were employed. Twenty-two CHWs working in site C, Khayelitsha, a deprived urban area of Cape Town, South Africa, participated in the study.

Findings from the situational assessment indicated a lack of knowledge among CHWs and the community about hypertension and diabetes and the risk factors for these noncommunicable diseases. Economic constraints and cultural beliefs and practices influenced the community's food choices and participation in physical activity. On the basis of these findings, a training program was proposed that would provide CHWs with the skills to prevent hypertension and diabetes in their community. A program was developed and piloted by the project team. A health club that focuses on promoting healthy lifestyles is currently being piloted.

This paper illustrates the unique involvement of CHWs in a successful participatory action research project on the prevention of hypertension and diabetes and promotion of health in a deprived urban setting. The project emphasizes the importance of involving local people in community-based initiatives to promote health and identifies that the primary role of health services is to develop appropriate skills in the local community, monitor activities, and facilitate a link with primary health services. (*Ethn Dis.* 2007;17:49–54)

Key Words: Community Health Workers, Developing Country, Diabetes, Health Promotion, Hypertension, Noncommunicable Disease, Participatory Action Research, Prevention, South Africa

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INTRODUCTION

Noncommunicable diseases are traditionally associated with developed countries and affluent populations. Recent evidence has shown, however, that the prevalence of these conditions is rising in developing countries and that the burden is increasingly moving to persons of lower socioeconomic status.^{1–3} Data from South Africa indicate that the burden of noncommunicable diseases, particularly diabetes and cardiovascular diseases, such as hypertension and stroke, is increasing in the urban Black African population.⁴ This increase in prevalence of hypertension and diabetes is attributed to increasing urbanization and other risk factors.^{5,6} Rising globalization and economic and social development have contributed by exposing this population to a variety of “fast foods,” most of which are high in fat—especially animal fat, salt, and sugar.^{5,7–8} Changes in dietary consumption, along with a decrease in physical activity and other environmental factors, have contributed to an increase in obesity in this population.⁹

Recognition of the particular role diet and physical activity play as risk factors for noncommunicable diseases led to the development of the World Health Organization Global Strategy on Diet, Physical Activity and Health in 2004.^{10,11} In South Africa, both the national and Western Cape provincial health departments have identified the promotion of healthy lifestyles as a priority, and strategies on diet and physical activity are being developed to tackle the problem.^{12,13}

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Role of Community Health Workers in Noncommunicable Diseases

Community health workers (CHWs) are a cadre of health workers, primarily in developing countries, whose main roles are promoting health and outreach work in their communities.¹⁴ CHWs are usually selected by the communities in which they reside and work for non-governmental organizations (NGO), from which they receive a salary or stipend. They typically undergo training in basic health care, health promotion, disease-specific techniques, and home-based care.¹⁵ Their work has mostly focused on communicable diseases, which are usually major causes of death in the areas where they work, and noncommunicable diseases have featured minimally. However, increasing prevalence of noncommunicable diseases, such as hypertension and diabetes, in developing countries has necessitated exploration of the role of CHWs in prevention and management of these conditions.^{1,4}

Participatory Action Research

The aim of participatory action research (PAR) is to bring about change that has a positive social value, for example, a healthy community.¹⁶ PAR is an emergent process, and the project design evolves over time.¹⁷ PAR uses a wide range of quantitative and qualitative methods, including mapping, model making, creative drama, and photography.

One of the key features of PAR is that it involves the active participation of the people whom the research is intended to assist as an integral part of the study. Participation and involvement of the community in research has been widely discussed in PAR literature, especially with regard to the level and type of

participation of partners.^{17,18–20} By engaging the skills and expertise of all partners in research, solutions to complex problems may be more easily found.²¹ In particular, community-based collaborative research is believed to bridge cultural gaps and, by engaging local knowledge, improve the quality and validity of the research. Participatory action research (PAR) typically follows a number of steps: request for assistance, negotiation, planning, and implementation.²²

This paper will illustrate the successful engagement of CHWs in a PAR project to gain an understanding of local factors contributing to increased risk of hypertension and diabetes, and describe culturally appropriate prevention and treatment interventions. There is very little work that has been done in addressing hypertension and diabetes in this population group and it is expected that the findings of this research will provide significant information that will be useful for similar populations in South Africa.

PRIMARY PREVENTION OF HYPERTENSION AND DIABETES PROJECT

Setting

The setting for this project is site C, an area of Khayelitsha, a township on the perimeter of Cape Town, South Africa. Khayelitsha has an estimated population of 407,050 and is largely inhabited by Xhosa-speaking people who have moved from rural areas of the Eastern Cape Province.²³ Khayelitsha has among the worst socioeconomic and health indicators in Cape Town; only 36% of adults are employed, 80% of the population live in poor housing conditions, the infant mortality rate is 43 per 1,000 live births, the tuberculosis incidence rate is 978 per 100,000, and the homicide rate is 120 per 100,000.^{24–26} The community health workers (CHWs) that took part in the project were formerly employed by

a NGO that provided community-based primary health care in Khayelitsha. At the initiation of the project, they were employed by the South African Christian Leadership Assembly, which combined with two other similar NGOs in 2001 to form Zanempilo. In December 2002, all the CHWs lost their jobs when the organization closed because of lack of funding. A few CHWs continued to work on the project, on a largely voluntary basis, while other CHWs have gained employment in the public health sector and other agencies. All 22 CHWs who worked in site C in 2000 were included in the study. The CHWs all lived in the areas in which they worked and shared the same sociocultural and demographic profile as the members of this community.

Request for Assistance

Community members in site C voiced concerns to CHWs working in their area about the increasing prevalence of hypertension and diabetes in their community. The CHWs raised these issues with health professionals in their organization, who acknowledged that CHWs had received minimal training in these conditions. The health professionals contacted a researcher (TP) based at the South African Medical Research Council in Cape Town to discuss the best way of addressing this problem.

Negotiation

The researcher visited the CHWs and health professionals and after listening to their concerns, she suggested a meeting with the local community health committee and community leaders in the area. After the meeting, the researcher proposed a participatory action research project in which the CHWs and researchers would be the main partners. CHWs and researchers would work together to identify the research problem, generate and analyze results, and develop skills. In this way,

the CHWs would be empowered to address the problem of increasing prevalence of hypertension and diabetes that they had identified in their community. At this stage, the School of Public Health, University of the Western Cape; Department of Medicine, University of Cape Town; the health department of the provincial government of the Western Cape; and other individuals were invited to be part of the project.

Planning

The partners agreed that the project should focus on the prevention of hypertension and diabetes in an urban Black township. The aims and methods of the project were then formulated to engage CHWs as partners in many aspects of the research process. The aims of the project were: 1) to identify factors that contribute to hypertension and diabetes in this setting; and 2) to design and implement culturally appropriate interventions to prevent hypertension and diabetes and promote healthy lifestyles.

The triple A approach to planning interventions was used: the process of *assessing* the situation, *analyzing* the findings, and taking *action* on the basis of this analysis. Both qualitative and quantitative methods were used in the study.

Assessment

The first stage was to conduct an assessment to identify the factors contributing to hypertension and diabetes. The assessment had two components — an assessment of CHWs and of the site C community.

CHW Assessment. The aims of the CHW assessment were: 1) to identify the knowledge, beliefs, and attitudes of CHWs about hypertension and diabetes; 2) to determine CHWs' perceptions about body size and image; and 3) to examine cooking practices and eating patterns of CHWs.

The assessment was carried out by a series of interviews using semistructured questionnaires, anthropometric measurements (height, weight, and blood pressure), focus group discussions, and observations. A total of 43 CHWs who worked in site C and site B (an adjacent area) participated in the CHW assessment. Two focus groups were held with 17 conveniently selected CHWs and individual interviews with all CHWs to identify knowledge, beliefs, and attitudes of CHWs about hypertension and diabetes. An additional two focus groups with 27 conveniently selected CHWs, followed by individual interviews with 42 CHWs, were held to explore attitudes, perceptions, and factors associated with body weight. Subsequently, all CHWs were taught to take anthropometric measurements by a professional nurse experienced in training researchers. Lastly, CHWs in site C were provided with chicken and maize (corn) and asked to demonstrate preparing and serving a meal for their families. The researchers took notes and photographs of cooking methods used and portions served.

Site C Community Assessment. The community assessment had 2 parts. The first was a community survey to establish the knowledge and perceptions of community members on hypertension and diabetes. Experienced fieldworkers were paired with CHWs to carry out the survey. The second part consisted of activities in the local environment in which the CHWs identified and documented factors that have a healthy and unhealthy influence on their community, such as type of food available, number of shebeens (places where alcohol is consumed), and areas for physical activity and recreation. Community health workers (CHWs) were provided with disposable cameras to record observations in their areas. Each CHW visited a local spaza shop (small grocery shop) or a street vendor, noted the availability of certain foods, and interviewed shop owners on

aspects of their business. The final activity was a mapping exercise in which CHWs gathered together neighbors and, using large sheets of paper and fiber tip pens, drew a map of their area and then asked neighbors to contribute ideas of sources of positive or negative influence on health.

Analysis

Researchers and CHWs participated in collecting, collating, and analyzing results of the assessment. Researchers then categorized findings of the assessment per Whitehead and Dahlgren.²⁷ A summary of the key findings was presented to CHWs, researchers, NGO health professionals, representatives from the health department, and the local health committee at a meeting held in site C (See Table 1 for key findings). The presentation was followed by group discussions on the findings of the research. During the feedback session one CHW spoke on behalf of the CHW group: *“We have been discussing our results. I am going to speak for the group. We do not know what to eat to be healthy. We have realized that we have been poisoning ourselves with unhealthy food. We need to be educated,*

we do not want to die young and leave our children behind. We need help.”

Implementation

Action

A request from the CHWs to be informed about healthy eating led the researchers to propose the development of a training program so that CHWs could acquire the skills they needed to prevent hypertension and diabetes in their community. During 2001, an interactive training program, delivered in Xhosa and English, was developed in collaboration with the CHWs. It focused on improving the knowledge of CHWs in hypertension and diabetes; the promotion of healthy lifestyles, especially the importance of nutrition and physical activity, and developing their skills in communication and advocacy. In particular, the program promoted interventions that were appropriate and sustainable in this community. Training sessions were held once a week for three hours over a period of five months in site C. Subsequently, in 2004, the training program was piloted with a second group of 30 CHWs in site B. Thereafter a training

Table 1. Summary of key findings of CHW and community assessment (categorized according to Whitehead and Dahlgren²⁷)

Category	Findings
Individual lifestyle factors	Lack of knowledge about hypertension and diabetes and risk factors, such as diet, obesity, lack of physical activity Eating patterns very haphazard High use of oil in cooking Large portions eaten
Social and community influences	Cultural perceptions influence type and amount of food eaten Strong family influences on cooking and eating practices Positive cultural perceptions about large body size
Living and working conditions	Limited choice and availability of food locally Street vendors sell very fatty (cheap) foods Transport costs incurred in shopping at supermarkets situated outside area
General socioeconomic, cultural, and environmental conditions	Little money available for purchasing food Lack of opportunity and suitable venues for exercise and participation in sport Concerns about physical safety limit opportunities to be physically active

manual was finalized and made available in hard copy and electronically.²⁸ The training manual is currently being used to train nine volunteers from three churches in Khayelitsha, and the Western Cape Health Department plans to use the training program in other parts of Cape Town.

Community Interventions

After researchers and CHWs gained an understanding of the factors contributing to hypertension and diabetes in this setting and the CHWs were empowered with additional knowledge and skills in prevention of these noncommunicable diseases and promotion of health, the next stage was to develop appropriate interventions at the community level. Between 2001 and 2005, ≈2000 local community members participated in community interventions in site C. The first community interventions took the form of awareness-raising events that were held during November for three successive years between 2001 and 2003. Community health workers (CHWs), researchers, and health professionals from the local primary care clinic participated in these events. At each event, anthropometric measurements, screening for blood pressure and blood glucose, education on nutrition and physical activity, and fun walks took place. At the first community event in 2001, CHWs were responsible for advertising the event, encouraging active participation of the local community, and assisting with anthropometric measurements. As CHWs gained skills as part of the project and training program, they progressively took greater responsibility for activities at the awareness-raising events. At the 2003 event, in addition to the usual activities, a play on diabetes was presented. It was performed by local Xhosa actors and CHWs to >700 people at the awareness event and then to an additional 400 people at 13 venues in site C during the subsequent week.²⁹ During 2005, successful com-

munity awareness events were held in April and September and, for the first time, CHWs led a physical exercise session for community members. Approximately 200–250 local community members participated in each community event, except the 2003 drama event, which attracted a total attendance of 1100.

Health Club

After completing training, the CHWs proposed starting a walking club in their area, and they agreed that the next phase of this project would be to develop a health club. The CHWs named the club *Masiphakame Ngempilo Yethu*, “let us stand up for our health.” During 2004, six CHWs attended training sessions with a sports scientist on leading exercises and then recruited community members from their area to the club. Currently, ≈30 members meet weekly, on Wednesday mornings, in a hall in site C. At each session club members are led through a series of exercises by trained CHWs and then have demonstrations and discussions on various topics such as, healthy nutrition, cooking techniques, and the importance of physical activity. Once a month, CHWs take blood pressure measurements and, if necessary, refer members to the primary care clinic in site C. The researchers currently play an ongoing supportive role in this initiative.

DISCUSSION

This research provided considerable information on the problem of increasing prevalence of hypertension and diabetes in this particular community. It identified a wide range of factors that affect these diseases and illustrated ways in which CHWs could be involved in addressing the problem. The findings of the CHW and community assessments indicated that, while individual knowledge about hypertension and diabetes and risk factors was poor, both social

and cultural influences about food and body size, as well as the socioeconomic and environmental context, were important contributory factors to the problem in this community. For example, a large body size, particularly for women, was considered a desirable attribute. Furthermore, socioeconomic and environmental constraints, such as limited food choices, long distances, high transportation costs to and from the nearest supermarket, and lack of opportunities to engage in physical activity were highlighted (Table 1). These factors are reported in detail elsewhere and have been echoed in a recent report on the increase in obesity and related health problems among the urban poor in Latin America.^{30–33} The project findings indicated these broad factors must be taken into account in the development of appropriate responses to the increasing prevalence of hypertension and diabetes in this and similar communities.

The project was successful in achieving the desired aims of identifying factors that contribute to hypertension and diabetes in this particular setting and designing and implementing interventions to prevent these specific diseases and promote healthy lifestyles. This success may largely be attributed to the community-based participatory action research method, which benefits from the unique engagement between “researcher” and “subjects.”²² In this situation, active participation of CHWs, who are similar in culture and background to the local community, resulted in an in-depth understanding of the complex issues facing this community. One of the unique features of this project was that it included all three components that Tandon identified as indicators of “authentic participation.”²⁰ First, it addressed an issue of importance to the community or, in Tandon’s words, the community and CHWs “set the agenda”; second, it involved the CHWs in assessing and analyzing the situation in their commu-

nities; and third, the CHWs developed and implemented appropriate interventions.²⁰

Another aspect of PAR identified by both Springett and Gosin is the utilization of the skills of all partners and the development of collective knowledge.^{16,21} The intimate knowledge and access of CHWs to their community was complimented by the methodologic research skills of the researchers. Community health workers (CHWs) gained knowledge of hypertension and diabetes, skills in data collection and analysis, and prevention strategies appropriate to their setting. They also increased in self-confidence and self-esteem and said they felt more confident in interacting with health service professionals after the training program. At the same time, researchers developed an in-depth understanding of the sociocultural factors contributing to hypertension and diabetes in this setting. Community-based programs in a number of countries found that experienced CHWs, with appropriate training, can address many basic healthcare needs.³⁴ In South Africa, the role of CHWs in healthcare delivery has been a matter of much debate, but recent moves by the National Department of Health and the provincial government of the Western Cape seem to indicate a more positive stance on their value.^{13,35-36}

Active participation of the Western Cape Department of Health in this project has ensured that lessons learned from the project are being incorporated into local health sector planning for prevention and control of hypertension and diabetes. This planning includes development of the role of CHWs in health promotion and prevention strategies such as community-based awareness activities and health clubs, support groups for people with chronic conditions, and formalizing the integration of CHWs into primary health services for noncommunicable diseases.

One of the limitations of the project is the lack of evidence of the effect of the

intervention from outcome data, such as decreased prevalence of hypertension and diabetes, or intermediate variables (decrease in body weight or increase in physical activity). A follow-up community survey is planned for 2006, and this will provide information on some variables. Attributing change in population variables or outcomes to success of a community-based intervention is difficult. However, despite this limitation, the project provides a basis for the development of community-based strategies to tackle the increasing levels of hypertension and diabetes and other noncommunicable diseases in the urban Black African population of South Africa and contributes to broader literature available on this issue.³⁶

CONCLUSION: IMPLICATIONS FOR HEALTH SERVICES

The project highlighted a number of important implications for health services. First, it has illustrated the value of involving CHWs or other local teams in community-based initiatives to promote health. Second, it has identified the key role of health services to facilitate appropriate training and develop skills in identified teams. And, third, it has shown that the establishment of mechanisms to monitor and link community-based services to local primary health services may strengthen the quality of the services provided and increase their long-term sustainability.

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