



Perceptions, knowledge and beliefs about prevention of cardiovascular diseases in Villa Nueva, Guatemala

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Summary

Background: In Guatemala, cardiovascular diseases are becoming the leading cause of mortality and disability. The rising burden of these diseases makes it imperative to formulate effective community-based interventions. The success of these interventions will depend on the felt needs of the community. Therefore, in this study we assessed perceptions, knowledge and beliefs about cardiovascular diseases in community members, health workers and policy makers from Villa Nueva, a community selected by the Ministry of Health of Guatemala as a site to develop a cardiovascular disease prevention programme. This study provides baseline information for designing and implementing the demonstration programme.

Methods: Qualitative methods (focus group discussions and in-depth interviews) were used to elicit the views of community members, health workers, and policy makers on the magnitude, impact, risk factors and prevention of cardiovascular diseases and infrastructure in Villa Nueva.

Results: Community members perceive cardiovascular diseases as a serious health problem that has increased in recent years. They consider cardiovascular diseases to be acute dramatic events of sudden onset. According to health professionals and policy makers, the adoption of Western lifestyles by the population is the most important contributor to the increase of cardiovascular diseases in Guatemala. They indicated that prevention requires education of the population, together with adequate health policies. According to most participants, the infrastructure for the management of cardiovascular diseases at the primary health care level is inadequate.

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Conclusion: Findings from this study suggest strategies for context-specific formulation of the cardiovascular prevention programme.
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Introduction

In developing countries, cardiovascular diseases (CVD) are becoming an increasing public health problem, with serious economic and social consequences [1–4]. In Guatemala, the percentage of deaths attributed to CVD increased in recent decades: between 1986 and 1999, it doubled from 7% to 13% [5]. In 2001, CVD were the second cause of death [6]. It is projected that the incidence of CVD will increase in the next decades due to increased life expectancy and the adoption of unhealthy lifestyles. This trend will particularly affect urban areas and low-income communities.

Research has provided evidence of the risk factors (RF) that cause CVD. Tobacco use, unhealthy diets and physical inactivity are lifestyles that account for most of the risk that underlies the occurrence of CVD [7,8]. In Guatemala, there is limited information about the prevalence of RF. This limitation prompted an investigation of CVD RF in Villa Nueva, which is an urban community near Guatemala City. The ‘‘Survey of Prevalence of Diabetes, Hypertension and Associated Risk Factors in Villa Nueva 2002–2003’’ [9] studied 1397 subjects older than 19 years residing in Villa Nueva, and showed a high prevalence of RF in this community: tobacco smoking (16%), sedentarism (51%), overweight (54%), diabetes (8%), hypertension (13%), and high blood cholesterol (35%). The prevalence of diabetes is higher than the prevalence reported in other Latin American cities such as La Paz Bolivia (5.7%), Santiago Chile (6.5%), Bogotá Colombia (7.4%), Asuncion Paraguay (6.5%), and similar to the prevalence reported in Mexico City (8.7%) [10]. The prevalence of low level of physical activity and overweight is comparable to the prevalence reported in some developed countries such as Canada and the United States.

The increase of CVD in developing countries demands an urgent public health response, utilizing available knowledge of RF and effective interventions for prevention and risk reduction. Based on the high prevalence of RF, adequate health infrastructure and accessibility from the Capital, the Ministry of Health of Guatemala selected Villa Nueva for a CVD demonstration project [11]. The demonstration project is in its early phase of development and will include population-based

health promotion activities as well as high-risk population interventions.

Given the scarce resources and the double burden of disease in Guatemala, it is imperative that interventions are context-specific and resource-sensitive. Thus, it is critical to explore the available capacity for CVD prevention and control to facilitate the formulation of appropriate interventions. Capacity in this study is defined as a resource in terms of perceptions, knowledge and practices of the community, health workers and policy makers related to effective CVD management and control. It is also a resource in terms of adequate healthcare infrastructure and a supportive policy framework [12].

Therefore, the aim of this project was to apply qualitative methods (focus group discussions and in-depth interviews) to assess the current capacity in Villa Nueva for initiating the CVD demonstration project. The specific objective of the project was to assess perceptions, knowledge and beliefs about CVD and their prevention in community members, health workers and key policy makers.

Methods

Study location

The study was conducted in the Municipality of Villa Nueva, located 15 km from Guatemala City. Villa Nueva has an urban population of about 350,000, distributed in four districts: Ciudad Peronia, El Mezquital, Villa Nueva and Barcenas.

Focus group discussions (FGD) were conducted with community members, CVD patients and primary health care (PHC) providers from Villa Nueva. FGD with physicians from tertiary hospitals and in-depth interviews with policymakers were conducted in Guatemala City.

Instruments

The methodology for the qualitative analysis was adapted from the core protocols developed by the Initiative for Cardiovascular Health Research in the Developing Countries (ICHealth) [11]. Discussion guides were prepared for FGD with community members, non-physician health workers and physicians. The guides included questions on the magni-

tude and symptoms of CVD, RF and prevention and existing infrastructure for the treatment of CVD. A semi-structured interview guide was prepared to elicit the responses of policy makers on CVD burden in the country, existing health care facilities and issues relating to RF prevention (see Table 1).

Organisation of the focus groups

Each FGD had 6–8 participants. A moderator and two assistants were responsible for interviewing and recording the details of the discussions. All the FGD were audiotaped; the moderator and an assistant made further written notes.

Focus groups with community members

FGD were organised to elicit the opinion and knowledge of selected community members on: (i) the magnitude and symptoms of CVD and its impact (economic and health) on the household and the community; (ii) risk factors (biological and behavioural) of CVD and scope for the prevention and control of the same; and (iii) existing infrastructure for the prevention and treatments of CVD and locate the nature of deficiencies.

FGD were conducted at the PHC facility of each of the four districts of Villa Nueva. Four FGD were

conducted with men and women 20–40 years old, and eight FGD were conducted with individuals older than 40 years: four with cases (individuals with a history of CVD, diabetes, hypertension and/or hyperlipidemia) and four with non-cases. All participants were recruited with the help of social workers of the health centres from individuals attending these facilities for any reason, from home and worksite visits. The main selection criterion was that all individuals were adult residents of Villa Nueva. For cases, the additional selection criterion was a history of CVD, diabetes, hypertension or hyperlipidemia. Most participants had low socio-economic status, reflecting the majority of the population of Villa Nueva.

Focus groups with health professionals

Villa Nueva has one PHC centre and three sub-centres. Each of these facilities has 1–3 physicians and 2–4 non-physician health workers (nurses and social workers). Two FGD were conducted, one with the physicians and one with the non-physician health workers. In addition, two FGD were carried out with specialist physicians (residents, cardiologists, internists, endocrinologists, nutritionists and neurologists) from two public hospitals in Guatemala City. The rationality of including physicians

Table 1 Methodology at a glance

Study location

Municipality of Villa Nueva, Guatemala

Study methodology

Qualitative (focus group discussions and in-depth interviews)

Study participants

A. Community members (cases and non-cases)

Main themes assessed

1. Knowledge about magnitude and symptoms of CVD: perceptions regarding the extent of the CVD problem and the impact on the household and their community
2. Risk factors and prevention: knowledge about CVD risk factors (behavioural and biological) and methods to prevent and control these diseases
3. Opinions about the existing infrastructure in the health system for the prevention and treatment of CVD

B. Health professionals (physicians and non-physicians)

Main themes assessed

1. Knowledge about magnitude of CVD: points of view about the magnitude of the CVD epidemic in Guatemala and the socio-economic impact of these diseases on the population
2. Knowledge about CVD risk factors and methods for prevention and treatment
3. Opinions about the existing infrastructure in the health system for the prevention and treatment of CVD

C. Policy makers (from the Ministry of Health, local authorities of Villa Nueva and international organisations)

Main themes assessed

1. Perceptions about magnitude of CVD: opinions about the magnitude of the CVD epidemic in Guatemala, the socio-economic impact of these diseases on the population, and questions about the priority that CVD should have within national health programmes
2. Knowledge about CVD risk factors and the need for preventing these diseases
3. Opinions about the existing infrastructure in the health system for the prevention and treatment of CVD

Study period

March–September 2004

from these public hospitals was that many patients from Villa Nueva currently seek care in these facilities, and they may also be used as referral centres in future prevention programmes.

The FGD were designed to elicit the views of health care workers on: (i) magnitude and symptoms of CVD; (ii) the scope for the prevention and control of the biological and behavioural risk factors; (iii) existing infrastructure for the diagnosis and treatment of CVD; (iv) the role of the government and priority of CVD in the national health budget.

In-depth interviews with policy makers

Ten in-depth one-on-one interviews were conducted with key policy makers from the Ministry of Health, the Health Commission of the Municipality of Villa Nueva and from international organisations that provided technical or financial assistance in Guatemala (US AID, European Union, PAHO and World Bank).

Informed consent was obtained from FGD participants and the study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki as reflected by approval of the Ministry of Health human research committee.

The interviews were designed to elicit the opinion of policy makers on: (i) the magnitude and impact of CVD in Guatemala; (ii) feasibility of CVD prevention and control; (iii) existing infrastructure for CVD prevention and control; and (iv) priorities of CVD within the governmental and international organisations.

Data analysis

The results from FGD and in-depth interviews were organised into 3 main themes: magnitude and symptoms of CVD, perceptions of RF and prevention, and infrastructure. All data were transcribed from tapes in a word processing programme to prepare them for analysis. The data were then coded using the Ethnograph software [12].

Results

Knowledge about magnitude and symptoms of CVD

Community Members

Most FGD participants perceived that CVD caused sudden and delayed death and recognised the importance of emergency care to prevent these outcomes. The cases added that CVD caused finan-

cial hardship, unemployment, depression and poor self-esteem. Participants considered that CVD were caused by dramatic events, such as getting scared, angry or even getting very happy. A common theme across groups was fear of the violence and crime in their communities and the perception that this was responsible for much of the CVD in Villa Nueva (see summary of key findings in Table 2).

The participants mentioned that CVD affected both men and women older than 30 years. The female participants expressed that women were more affected than men due to their multiple roles in society. Some male participants agreed with this opinion, but other men said that they were more affected by CVD than women due to their heavy work and the stress resulting from the responsibility to support their families.

The majority of participants recognised headache, arm and chest pain, breathlessness, dizziness and sweating as symptoms associated with a heart attack. They also recognised stroke symptoms such as difficulty speaking, weakness, paralysis and numbness of the face, headache, loss of vision and dizziness.

Health professionals

Most physicians and non-physicians perceived that CVD had increased in recent years, particularly among young populations. However, a few physicians believed that the perceived increase was due to better diagnosis rather than changes in incidence. Many participants expressed their concern that CVD would have a great impact on the health system and on the economy of the country.

The non-physician health workers admitted that they did not have any specific training to diagnose and treat CVD, a view shared by some of the PHC physicians. Other PHC physicians felt that they had the required knowledge to manage CVD, but admitted that they faced limitations in their practice due to the lack of adequate infrastructure and availability of medications. Many physicians from tertiary hospitals commented about the need to improve the quality of the medical curricula in universities and to increase the number of beds available in hospitals to deal with the increasing demand for cardiovascular care in Guatemala.

Policy makers

Some policy makers believed that the prevalence of CVD had increased in recent years in Guatemala. However, others argued that age-adjusted mortality had not changed, but that because of the aging of the population, people perceived that there was a rise in CVD.

Table 2 Key findings of the study

Perceptions and opinions

A. Magnitude and symptoms

Community members

1. CVD are acute events and diseases of sudden onset
2. CVD are caused by dramatic events, such as getting scared, angry or even getting very happy
3. The majority of participants recognised some of the symptoms associated with heart attack and stroke
4. CVD causes financial hardship, unemployment, depression and poor self-esteem

Health care professionals

Non-physicians

1. CVD have increased in recent years, particularly among the young
2. CVD are going to have a great impact on the health system and on the economy of the country
3. We did not have any specific training for diagnosis and treatment of CVD

Physicians

1. CVD have increased in recent years (*a few physicians believed that the perceived increase was due to better diagnosis rather than changes in incidence*)
2. We have the required knowledge to manage CVD, but we face limitations in our practice due to a lack of adequate infrastructure and medications (*PHC physicians*)
3. It is important to improve the quality of the medical curricula in universities and to increase the number of beds available in hospitals to deal with the increasing demand for cardiovascular care in Guatemala (*Physicians from tertiary hospitals*)

Policy makers

1. The prevalence of CVD has increased in recent years in Guatemala
2. The age-adjusted mortality has not changed, but because of the ageing of the population, people perceive that there is a rise of CVD
3. CVD are increasingly affecting women and individuals of low socio-economic status

B. Risk factors and prevention

Community members

1. CVD risk factors were not spontaneously identified
2. Poor diets, obesity, hypertension, diabetes and smoking are possible causes of CVD
3. Diabetes and hypertension are common diseases caused by strong emotions and family history
4. Exercise and a balanced diet are good for heart health
5. It is difficult to exercise and follow a healthy diet due to financial limitations, unsafe neighbourhoods, or established lifestyle patterns

Health care professionals

Non-physicians

1. Many participants could not relate diabetes to CVD and ignored appropriate methods to treat this disease
2. CVD are caused by family history, unhealthy lifestyles and stress
3. CVD could be prevented by early detection and control of risk factors
4. We could have an important role in the prevention of CVD because we spend more time counselling than doctors, and thus we are able to establish more intimate and trusting relationships with patients

Physicians

1. The adoption of western lifestyles by the population is the most important contributor to the increasing incidence of CVD in this country
2. Diabetes and hypertension are CVD risk factors that increase if individuals are sedentary, obese and have a family history
3. Prevention of CVD should be based on educational programmes to promote balanced diets and exercise and to control smoking

Policy makers

1. There is scientific evidence that CVD can be prevented through early detection of risk factors and adoption of healthy lifestyles
2. CVD prevention requires education of the population together with adequate policies that favour the adoption of healthy lifestyles
3. The infrastructure and experience gained developing prevention campaigns for infectious diseases could provide excellent means to develop similar programmes to prevent CVD

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Table 2 (continued)

Perceptions and opinions

C. Infrastructure

Community members

1. PHC centres satisfactorily cover the needs of infectious diseases but lack adequate equipment to diagnose and manage CVD, diabetes and other chronic diseases
2. We go to the primary health centres just to vaccinate our children or to seek care for infectious diseases. To seek treatment for CVD we go to the hospitals in the City
3. Primary health centres need to increase their personnel to improve the quality of care
4. It is very difficult and expensive to find drugs prescribed for CVD treatment

Health care professionals

Non-physicians

1. The infrastructure for CVD management at the primary health centres is inadequate due to limited availability of equipment, trained personnel, drugs and ineffective referral linkages
2. We are overwhelmed by the workload imposed by infectious diseases, which is a barrier to participate in CVD prevention programmes

Physicians

1. Communicable diseases should still have the highest priority because these diseases are the main cause of mortality in the country. However, given the epidemiological transition that is taking place in Guatemala, CVD should begin to receive increasing priority from the government
2. The required facilities for the care of CVD patients are only available at tertiary hospitals, where access is difficult due to deficiencies in the referral system
3. To incorporate CVD prevention programmes in PHC centres, extra personnel and financial resources would be needed

Policy makers

1. Maternal and child health and vaccination programmes are the priority in the PHC system so these facilities lack basic equipment to diagnose CVD and essential medications, and the health personnel do not have the training and skills to manage these diseases
2. CVD are receiving increasing priority by the government, but in relative terms, communicable diseases have a higher priority due to the greatest burden of these diseases in the country
3. One of the problems to prioritise CVD within the budget of the government is the lack of mortality and morbidity information to document the magnitude of these diseases
4. International policy makers: "to incorporate CVD into the assistance programmes for Guatemala, it is necessary to demonstrate the magnitude of the burden of these diseases"

All participants shared the opinion that the CVD mortality was higher in men than in women, but that there was a trend toward levelling the gender difference due to the increasing presence of RF such as obesity and smoking in women. The policy makers also agreed that CVD were increasingly affecting individuals of low socio-economic status.

Risk factors and prevention of CVD

Community members

The FGD participants could not spontaneously identify the main CVD RF. When prompted, they associated unhealthy diets, obesity, hypertension and smoking as possible causes of CVD. Fatty and sugary foods were considered unhealthy and the intake of fruit and vegetables was considered beneficial to the heart. Despite this knowledge, preference for consuming fatty foods over fruit and vegetables was admitted, particularly among young participants.

Cases and non-cases shared the opinion that obesity was bad for their hearts and that this condition was caused primarily by unhealthy dietary habits and not by heredity. They recognised that diabetes and hypertension were common, silent diseases associated with CVD and caused by strong emotions and family history. Diabetic individuals knew that their disease could be life threatening but that it could be controlled with diet and medications.

The FGD participants viewed smoking as a cause of heart attacks, lung cancer and other lung conditions. Smoking was not associated with stroke. Participants perceived that smoking had increased in recent years, particularly in men, and that it was becoming more frequent in teenagers than in adults. There was a general view that in Guatemala proper regulations to control smoking are lacking.

The general opinion was that CVD could be prevented with exercise, diet and medications. Poverty and lack of time were perceived as barriers for regular consumption of healthy foods. Participants expressed that it was difficult to exercise due to

financial limitations, unsafe neighbourhoods, or established lifestyle patterns that were hard to change.

Health professionals

According to the non-physician health workers, CVD were caused by family history, unhealthy life styles and stress. The physicians added to this statement that the adoption of Western lifestyles was the most important contributor to the increasing incidence of CVD in Guatemala.

The physicians considered that diabetes and hypertension were CVD RF that increased if individuals were sedentary, obese and had a family history. Many non-physicians could not relate diabetes to CVD and ignored appropriate methods to treat and control this disease.

Both groups of health workers shared the view that smoking was harmful and was increasing, particularly among young men. All health professionals perceived that existing anti-tobacco laws were not properly enforced.

The non-physicians expressed that CVD could be prevented by early detection and control of RF. They perceived that they could have an important role in the prevention of CVD because they were able to spend more time counselling than doctors, and thus are able to establish more intimate and trusting relationships with patients. The physicians expressed that the prevention of CVD should be based on the reduction of RF through educational programmes that promote balanced diets, exercise and smoking cessation.

Policy makers

According to the policy makers, CVD were emerging in Guatemala as a result of unhealthy lifestyles. They shared the opinion that there was enough scientific evidence that CVD could be prevented through the early detection of RF and lifestyle modifications. There was general agreement that the prevention of CVD required an educated population together with adequate policies that favour the adoption of healthy lifestyles. The policy makers from the Ministry of Health mentioned that the infrastructure and experience gained by developing prevention campaigns for infectious diseases could provide excellent means to develop similar programmes to prevent CVD.

Infrastructure

Community members

Most FGD participants perceived that PHC centres satisfactorily covered the needs of infectious dis-

eases but lack adequate equipment to diagnose and manage CVD. As a result of this limitation, they expressed that they went to the PHC centres just to vaccinate their children or to seek care for infectious diseases. To seek treatment for CVD they went to the hospitals in the City. To rectify the limitations of PHC centres, community participants identified the need to increase the number of health professionals and to improve access to medications because it was very difficult and expensive to obtain drugs prescribed for CVD.

Health professionals

For non-physicians, the existing limitations to diagnosing and treating CVD patients in PHC centres are lack of space, equipment, personnel and medicines. They felt overwhelmed by the workload imposed by infectious diseases, which was a barrier to participation in CVD programmes. The physicians added that most of the required facilities for the care of CVD patients were available only at tertiary hospitals, where access was difficult due to deficiencies in the referral system and the concentration of these facilities only in large urban areas.

When asked about government priorities, the physicians indicated that communicable diseases should still receive the highest priority because these diseases were the main cause of mortality, but given the epidemiological transition taking place in Guatemala, CVD should begin to receive increasing attention from the government.

When asked about the possibility of starting a CVD prevention programme, both physicians and non-physicians considered that extra personnel and financial resources would be necessary to introduce such programmes into the health centres of Villa Nueva.

Policy makers

Participants pointed out that infectious diseases and child health programmes were the priority in the PHC system, so these facilities lacked services to diagnose and treat CVD. They recognised, however, the need to incorporate CVD into the PHC services.

When questioned about the allocation of funds and priorities, the policy makers of the Ministry of Health indicated that CVD were receiving increasing priority from the government, but that, in relative terms, communicable diseases should have a higher priority due to the greater burden of these diseases in the country. The policy makers admitted that one of the barriers to prioritising

CVD within the government budget was the lack of data to document the magnitude of these diseases.

Policy makers from international organisations said that their priorities were based on the magnitude of the burden of diseases and immediate health problems affecting countries. They indicated that because there was abundant evidence that communicable diseases had a high burden in Guatemala, all their programmes targeted these diseases, and that incorporating CVD into assistance programmes would require demonstrating the magnitude of the burden of these diseases. They also acknowledged difficulty in documenting the impact of CVD due to the scarcity of epidemiological information available in Guatemala.

Discussion

The rationale for any community-based intervention programme must be based on the felt needs of the community to have wide acceptability and success. The present study has been able to identify many issues relating to perceptions of the magnitude, prevention of CVD and infrastructure currently available that will provide critical inputs for designing the demonstration project in Villa Nueva.

A key finding of the study was the awareness of the community, health workers and policy makers that CVD was a problem of increasing importance and their concern about the future impact of these diseases. These perceptions probably mirrored the pervasiveness and increasing prevalence of CVD in the urban regions of Guatemala. Awareness of the magnitude of CVD is a strength that will facilitate the acceptance of the demonstration project in Villa Nueva.

Most community members considered CVD as acute and dramatic events of sudden onset, and did not perceive their gradual development due to RF. A community-wide campaign will need to provide information about the early detection and control of RF. A key component of the campaign should be the involvement of the local media, with additional educational activities conducted by health workers of the primary health care centres.

An interesting finding was that the majority of FGD participants were aware that CVD could be prevented through exercise, healthy diet and avoidance of tobacco. However, it was evident that a gap exists between the knowledge and the actual behaviours and lifestyles of the participants. This is probably due to other important determinants of behaviour, such as the fear of violence, the absence of adequate places to exercise, inaccessi-

bility of healthy diets and time limitations to prepare healthy foods. Therefore, effective prevention programmes should address job opportunities, urban planning and transportation to promote physical activity. In addition, policy interventions are needed to support production and supply of healthy foods.

The PHC infrastructure in Guatemala is mostly focused on infectious and maternal–child conditions. Thus, it is not surprising that the general opinion of participants was that the PHC centres did not have adequate capacity to diagnose and manage CVD. This situation needs to be rectified because interventions at the PHC level provide a unique opportunity for identification and management of CVD because PHC facilities are the most accessible to patients. Policies are needed to address the limited physical and human resources for CVD prevention and control [13].

Physicians and non-physician health workers at the PHC level are critical for controlling CVD [14,15]. However, our study indicated that health care providers from PHC level, particularly nurses, lacked adequate training. Capacity building activities should comprise restructuring of medical education, periodic training workshops and distribution of appropriate health education materials.

Adequate recognition of the magnitude of CVD by policy makers is important to provide a policy framework for CVD prevention. The lack of compelling evidence has been a major barrier to initiating action against CVD. In this study, health professionals and policymakers voiced the need for more evidence to document the burden of CVD to guide the allocation of adequate funding. To address this need, surveillance systems should be established to ascertain cause-specific mortality rates to monitor trends in CVD. In addition, research projects should be developed to measure the burden of CVD as years of healthy life lost due to premature mortality, morbidity or disability in Guatemala.

There are some limitations in the current study. First, this study did not explore the differences in perceptions and beliefs related to CVD according to socio-economic status and gender. Second, we did not use a random sampling methodology to recruit individuals. Most participants were drawn from a pool of individuals who were already using services provided by the PHC centres, or from a pool of individuals that agreed to participate in the FGD. Thus, the participants did not necessarily represent all adults from Villa Nueva. However, the congruency of the data with other reports supports our findings [11].

Based on the findings of this study, a training programme for the health personnel of the PHC centres of Villa Nueva will be implemented to incorporate an affordable CVD prevention programme in those facilities. In addition, community leaders and the local authorities of Villa Nueva are starting a collaboration to create safe areas and programmes to promote sports and exercise in the community. We expect that this study will provide tools to further empower communities and to tailor additional CVD interventions in Villa Nueva and other regions of Guatemala.

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