

## Chapter 5

### Conclusion, limitations and recommendations

#### 5.1 INTRODUCTION

This chapter concludes the study, discusses the findings and limitations, and makes recommendations for practice and further research

Coronary heart disease (CHD) reached epidemic proportions in the twentieth century. Despite public awareness of the risk factors, the prevalence continues to rise. In common with other expatriates, the Indian community of South Africa has a high incidence of CHD. The researcher, a trained intensive care nurse at the RK Khan Hospital, which serves a predominately Indian population, observed a marked increase in the number of patients admitted with CHD-related problems. The admission rate indicates an increasing incidence of CHD among the Indian community in KwaZulu-Natal. This observation prompted the researcher to explore the factors contributing to the increased CHD in the Indian community, with the anticipation that the research would contribute to culture-congruent preventative, promotive and rehabilitative programmes. Accordingly, the objectives of the study were to

- identify the risk factors contributing to the increased incidence of CHD among the Indian community in KwaZulu-Natal
- describe health problems related to these risk factors
- Develop health modification strategies to be implemented

#### 5.2 FINDINGS

The findings are discussed according to the three objectives of the study.

### **5.2.1 The prevalence of Factors contributing to the increased incidence of CHD among the Indian community in KwaZulu-Natal**

The factors were classified into non-modifiable risk factors (age, gender, heredity/familial diseases) and modifiable risk factors (diabetes mellitus, smoking, hypertension, sedentary lifestyle and stress).

A sample of sixty patients was used. The respondents' ages ranged from 26 to 65 years. Of the respondents, 60% were males and 40% were females. Their marital status included divorced, single, widowed or widowers, and married. The results indicated that 66,6% of the respondents had no partners. This finding could correspond to the premise that marital status could induce stress, as a result of financial problems and single parenting. The study revealed a strong link between genetics/family history and the development of CHD as indicated by the number of respondents with a strong family history of hypertension and diabetes mellitus.

### **5.2.2 Health problems related to the risk factors**

Of the respondents, 68% stated the demands of work as the main source of stress in their lives; 43% of the males and 47% of the females stated that they were stressed for various reasons. The physical signs of stress indicated an association of the early clinical manifestations of CHD and that the respondents could be developing heart failure, as there is a great association of these symptoms with hypertension. Among the respondents, 44% lived a sedentary lifestyle and only 26% were engaged in some form of activity. With regard to smoking, only 26% smoked. Their alcohol consumption indicated that 12% consumed alcohol regularly and 9% had stopped consuming alcohol for health reasons on the advice of their doctors, unaffordability and ill health.

With regard to health education, 62% stated that nurses did inform them about their condition and the factors that contribute to it; 18% indicated that they had received no education/advice, and 20% indicated that they were aware of the relationship between smoking and CHD. As for support systems, 56% were eager to join a support group for patients with risk factors; 18% (males and females) were unsure of the purpose of the group, and 26% were not interested as they had support from family, friends and relatives.

### **5.2.3 Developing health modification strategies**

The findings of this study indicate that the major known risk factors are hypertension, diabetes mellitus, certain pathogenic plasma lipid profiles, cigarette smoking, lack of physical activity. More controversial risk factors are chronic stress, personality type, life events and social support (Byrne, 1991:45; Tenebaum & Singer 1992:107). The AHA (1992) emphasises the relationship between exercise and cardiovascular health and named inactivity as the fourth modifiable risk factor, the other three being cigarette smoking, hypertension and serum cholesterol levels.

Stress was found to be a major problem in both the male and female respondents in this study. No other research has been done on South African Indians i.e. the effects of stress of on the individual contributing to CHD. The findings in this study indicated that the risk factors contributing to CHD were the same as those contributing to CHD in the other population groups in South Africa and globally.

### **5.3 LIMITATIONS**

The researcher identified the following limitations. The study was limited to the patients in Chatsworth's RK Khan Hospital therefore the results cannot easily be generalized as the research was conducted at one hospital only and in an urban area.

Resources and practical considerations limited the size of the sample. Data was only collected from patients in the medical wards with one or more of the risk factors leading to CHD.

Some of the participants were unable to read and write so the researcher assisted them to complete of their questionnaires.

Finally, demographic data about literacy level and occupation were not included in the questionnaire. These characteristics could have assisted the researcher to understand the variables in the study.

## **5.4 RECOMMENDATIONS**

Based on the findings of this study, the researcher makes the following recommendations.

### **5.4.1 Nursing practice**

The findings of this study are useful to health care providers in hospitals, and community and primary health care workers. The researcher therefore recommends the following:

- The primary prevention policy of CHD adopted by the American Heart Association should be adopted and implemented.
- Educate and motivate adults on the primary prevention of CHD (see section 5.3.2).
- Promote cultural behaviour that will improve the health status of adults.
- Give attention to cultural behaviour that is detrimental to the health of clients.
- Help clients to form/join stress management support groups and cardiac rehabilitation groups.
- Motivate clients to improve their education and attend literacy classes and stress the importance of educating their children.
- Health care providers should regularly update their own knowledge on CHD.

### **5.4.2 Primary prevention**

Primary prevention is

- Educating people about risk factors and lifestyle changes to reduce risk.
- Identifying and altering risk factors to prevent the onset of cardiovascular disease leading to heart attack or stroke.

Atherosclerosis is the build-up of fatty deposits (called plaque) in artery walls and the underlying process that causes most heart disease, stroke and peripheral vascular diseases. It begins in childhood or early adulthood, but it may be decades before clinical disease manifests. Focusing on prevention is therefore important. Although all the

causes of heart disease and stroke are not fully understood, the following risk factors can be changed or treated to reduce risk:

- Tobacco smoke
- High blood pressure
- High blood cholesterol
- Physical inactivity
- Obesity and overweight
- Diabetes mellitus

### **5.4.3 AHA recommendation**

The decline in death rates from cardiovascular disease in the USA is probably due to people adopting a healthier lifestyle. Hence it is recommended that healthcare professionals implement the following AHA (2005: 53) guidelines for primary prevention:

#### ***(1) Risk factor screening***

**Goal:** Adults should know the levels and significance of risk factors as routinely assessed by their primary care provider.

#### **Recommendations**

- Begin risk factor assessment in adults at age 20 years.
- Update family history of CHD regularly.
- Assess smoking status, diet, alcohol intake and physical activity at every routine evaluation.
- Record blood pressure, body mass, waist circumference and pulse (to screen for atrial fibrillation) at each visit (at least every five years; if risk factor are present, every two years).

## **(2) Global risk estimation**

**Goal:** All adults over age of 40 years should know their absolute risk of developing CHD. As low risk as possible

### **Recommendations**

- Adults, especially those over age 40 years or with two or more risk factors, should have their 10-year risk of CHD assessed with a multiple risk factor score every five years (or more often if risk factors change).
- Risk factors used in global risk assessment include age, sex, smoking status, systolic (and sometimes diastolic) blood pressure, total (and sometimes LDL or “bad”) cholesterol, HDL “good” cholesterol, and in some risk scores, diabetes.
- People with diabetes or a 10-year risk over 20% can be considered “CHD risk equivalent”; that is, they are at a level of risk similar to a patient with established CHD.
- Equations for calculating a 10-year stroke risk are available.

## **(3) Smoking**

**Goal:** Complete cessation. No exposure to environmental tobacco smoke.

### **Recommendations**

- Ask about tobacco use status at every visit. Advise every tobacco user to quit in a clear, strong and personalized manner.
- Assess the tobacco user’s willingness to quit. Assist by counselling and developing a plan for quitting. Arrange for follow-up, referral to special programs or prescription drug therapy.
- Urge avoidance of exposure to second-hand smoke at work or home.

#### ***(4) Blood pressure control***

**Goal:** Less than 120/80 mmHg; for people who have been diagnosed with high blood pressure, the goal is less than 140/90 mmHg; less than 130/80 mmHg in people with renal disease or diabetes.

#### **Recommendations**

- Promote healthy lifestyle modification. Advocate reducing weight; reducing sodium (salt) intake; eating fruits, vegetables and low-fat dairy products, moderating alcohol intake and physical activity in people with blood pressure of 120 mmHg or greater systolic or 80 mmHg or greater diastolic.
- For people with renal (kidney) disease or diabetes, start drug therapy if blood pressure is 130 mmHg or greater systolic or 80 mmHg or greater diastolic.
- Start drug therapy for those with blood pressure of 140/90 mmHg or greater if blood pressure goal is not achieved with lifestyle modifications. Add blood pressure medications, individualized to the patient's other requirements and characteristics (such as age, race or need for drugs with specific benefits).

#### ***(5) Dietary intake***

**Goal:** An overall healthy eating pattern

#### **Recommendations**

- Advocate eating a variety of fruits, vegetables, grains, legumes, low-fat or non-fat dairy products, fish, poultry and lean meats.
- Match energy (calorie) intake with energy needs and make appropriate changes to achieve weight loss when needed.
- Modify food choices to reduce saturated fats to less than 10 percent of calories, cholesterol to less than 300 mg per day, and (trans fats result from adding hydrogen to vegetable oils.) Substitute grains and unsaturated fats from fish, vegetables, legumes and nuts.
- Limit salt intake to less than 6 grams per day.

- Limit alcohol intake to no more than two drinks per day in men, one drink per day in women among those who drink alcohol.

## **(6) Aspirin**

**Goal:** Low-dose aspirin in people at higher risk of coronary heart disease (especially those with a 10-year CHD risk of 10%).

### **Recommendations**

- Do not recommend for patients with aspirin intolerance (or allergy).
- Low-dose aspirin increases risk for gastro-intestinal bleeding and haemorrhagic stroke. Do not use in people at increased risk for these diseases.
- The benefits of reducing cardiovascular risk outweigh these risks in most patients with higher coronary risk.
- Doses of 75-160 mg per day are as effective as higher doses. Consider 75-160 mg aspirin per day for people at higher risk (especially those with a 10-year CHD risk of 10% or greater).

## **(7) Blood lipid management**

### **Primary goal**

- LDL cholesterol less than 160mg/dL if no more than one risk factor is present.
- LDL cholesterol less than 130 mg/dL if two or more risk factors are present and 10-year CHD risk is less than 20%.
- LDL cholesterol less than 100 mg/dL if two or more risk factors are present and 10-year CHD risk is 20% or higher or if person has diabetes.

**Secondary goals** (if LDL cholesterol is at goal range): if triglycerides are greater than 20mg/dL, then use non-HDL cholesterol as a secondary goal:

- Non-HDL cholesterol less than 190 mg/dL for no more than one risk factor.
- Non-HDL cholesterol less than 160 mg/dL for two or more risk factors and 10-year CHD risk of 20% or less.

- Non-HDL cholesterol less than 130 mg/dL for diabetes or two or more risk factors and 10-year CHD risk greater than 20%.

### **Other targets for therapy**

- Triglycerides greater than 150 mg/dL
- HDL cholesterol less than 40 mg/dL in men and less than 50 mg/dL in women

### **Recommendations**

- If HDL cholesterol is above goal range.
  - Start therapeutic lifestyle changes (TLC) diet to lower it: less than 7% of calories from saturated fat and less than 200 mg per day of dietary cholesterol.
  - If more LDL cholesterol lowering is needed, add dietary options, emphasize weight reduction and physical activity.
  - Rule out secondary causes of high LDL cholesterol (liver function tests, thyroid function tests and urinalysis).
- After 12 weeks of TLC, consider LDL-lowering drug therapy if:
  - Two or more risk factors are present, 10-year risk is greater than 10%, and LDL cholesterol is 130mg/dL or greater than 10% and LDL cholesterol is 130 mg/dL or greater.
  - Two or more risk factors are present, a 10-year risk is less than 10 percent, and LDL cholesterol is 160 mg/dL or greater.
  - No more than one risk factor is present, and LDL cholesterol is 190mg/dL or greater.
- Start drugs and advance dose to bring LDL cholesterol to range, usually with a statin, but also consider bile-acid-binding resin or niacin.
- If the LDL cholesterol goal is not achieved, consider combination drug therapy.
- After LDL cholesterol goal has been reached, consider triglyceride level:
  - If triglycerides are 150-199 mg/dL, treat with therapeutic lifestyle changes (TLC)

- If triglycerides are 200-499 mg/dL, treat high non-HDL cholesterol with TLC and, if needed, consider higher doses of statin or adding niacin or fibrate.
- If triglycerides are 500 mg/dL or greater, treat with fibrate or niacin to reduce the risk of pancreatitis.
- If HDL cholesterol is less than 40 mg/dL in men and less than 50 mg/dL in women, start or intensify TLC. For higher-risk patients, consider drugs that raise HDL cholesterol (niacin, fibrates, statin).

### ***(8) Physical activity***

**Goal:** At least 30 minutes of moderate-intensity physical activity on most, and preferably all, days of the week.

#### **Recommendations**

- If patient has suspected cardiovascular, respiratory, metabolic, orthopaedic or neurological disorders, or is middle-aged or older and sedentary, he or she should consult a physician before starting a vigorous exercise programme.
- Moderate intensity activities (40-60% of maximum capacity) are equivalent to a brisk walk (15-20 minutes per 1.609 kilometres).
- Vigorous intensity activities (more than 60% capacity) offer added benefits.
- Recommended resistance training with eight to ten different exercises, 1 to 2 sets per exercise, and 10 to 15 repetitions at moderate intensity on two or more days per week.
- Include flexibility training and an increase in daily lifestyle activities to round out the regimen.

### ***(9) Weight management***

**Goal:** Achieve and maintain desirable weight (body mass index 18.5-24.9 Kg/m<sup>2</sup>). When a person's BMI is 25Kg/m<sup>2</sup> or higher, the waist measurement goal is 102 centimetres or less for men, 89 centimetres or less for women.

## **Recommendations**

- Start a weight-management programme through restricting calories in diet and increasing caloric expenditure (exercise) as appropriate.
- For overweight or obese persons, reduce body weight by 10% in the first year of therapy.

### ***(10) Diabetes management***

**Goal:** Normal fasting plasma glucose (blood sugar) of 3-6 mg/dl. and Hb1Ac of less than 7 percent.

## **Recommendations**

- Start appropriate therapy to achieve near-normal fasting plasma glucose or as indicated by near-normal Hb1Ac. The first step is diet and exercise.
- Second step therapy is usually oral hypoglycemic drugs: sulfonylureas and/or metformin with ancillary acarbose and thiazolidinediones. Third step is insulin.
- Treat other risk factors more aggressively. For example, change BP goal to less than 130/80 mmHg and LDL cholesterol goal to less than 100 mg/dL.

### ***(11) Chronic atrial fibrillation***

**Goal:** Normal sinus rhythm or, if chronic atrial fibrillation is present, anticoagulation with international normalized ratio (INR) of 2.0-3.0 (target 2.5).

## **Recommendations**

- Verify pulse with an electrocardiogram (ECG/EKG). Convert appropriate persons to normal sinus rhythm.
- For patients in chronic or intermittent atrial fibrillation, use warfarin anticoagulants to INR 2.0-3.0 (target 2.5).
- Use aspirin as an alternative in those with certain contraindications to oral anticoagulants. Patients under age of 65 years without high risk may be treated with aspirin (AHA. 2005: 3547)

#### **5.4.4 Stress management: nursing interventions**

Rodgers & Vaughan (2002: 2553) stated that “For most people, exercise and relaxation work best. Exercise helps you become physically fit, and the fitter you are, the better you will be able to handle stress. Once you have the okay from your doctor, try to exercise 15 to 30 minutes every day. Choose an activity you enjoy. Work with your doctor to find out which activities and exercise level are right for you.

The researcher suggests that relaxation takes your mind off stress and eases your body’s response to stress. Types of relaxation include meditation, deep breathing, muscle relaxation, listening to relaxing music and picturing pleasant scenes. For best results, use one of these activities for 15 to 20 minutes once or twice a day.

Whenever you feel yourself becoming angry, take a few deep breaths and slowly tell yourself to stay calm. If someone says or does something that angers you, count to 10 before responding. If you get angry often, try to find a release. Do something physical, but not strenuous, such as taking a relaxing walks. Whenever possible, avoid situations and people that anger you. If you hate rush hour traffic, for instance, change your schedule or find a different route.

Expressing your emotions can help, too. If you keep things to yourself, you can carry an unnecessary burden. Talk to your friends and family and ask for support. If you do not have adequate support system, work to develop one so you will have someone to talk to when you are upset.

Consider joining a support group. There are support groups for heart patients, men, women, retired persons, single parents and many other types of people. Also consider keeping a journal to record your thoughts and feelings. If you have a lot of pent-up feelings, but have trouble expressing them, consider seeing a therapist.

Establish realistic goals and priorities. Eliminate low-priority activities, especially if they cause stress. When you feel overwhelmed, focus on one task at a time and give yourself enough time to do each one.

Diet, exercise, sleep and rest are great stress busters. Exercise helps you work off “stress energy.” Try to exercise every day.

Eating a balanced diet gives you the physical stamina to handle stress better. Do not turn to drinking, smoking, drugs or overeating to cope with stress. These responses can mask your stress, making it worse.

Be sure to get adequate sleep and rest. When you are tired, you cannot cope well with stress. Pace yourself during the day. Get away from the things that bother you by taking frequent breaks and engaging in fun activities. Although getting away will not fix the situation, it will decrease your stress level. When you return to deal with the situation, you will feel rested and a better frame of mind.

Certain styles of thinking- perfectionism, all-or-nothing thinking and negative thinking, can lead to feeling stressed out. If you are a perfectionist, try to lower your expectations of yourself and others and learn to accept things you cannot change.

If you see things in all-or-nothing terms, you may take things personally and react in an exaggerated way to normal, everyday events. For instance, if a colleague does not say hello when you pass by her at work, you may think she does not like you. You can challenge such a thought by examine whether they are rational. Usually you will see that the other person’s actions are not about you at all, this colleague, for example, is probably wrapped up in her own concerns.

If you are a pessimist, try to focus on the good, not the bad and try to look at problems as opportunities. Instead of saying to you, “Things are going badly”, “tell yourself”, “I can cope with this situation”. ”Above all, keep a sense of humour”.

A technique called reframing can help many people. Reframing” helps change the way you view things so that you can feel better about them. It centres on the idea that the same situation can be seen in many different ways”. (A glass half empty is also a glass half full.) Reframing will not change reality, but it helps you find less stressful ways of looking at a situation.

Lastly if you cannot cope with stress on your own, get professional help. Ask your doctor, priest, family or friends to recommend a therapist. In a crisis, call your doctor or a “Hotline” immediately. Look in the yellow pages of your telephone book under Hotlines or Crisis Intervention. Call the emergency number listed. You also can go to the hospital emergency room. Besides offering temporary help, the emergency room staff will be able to tell you where you can get further help (AHA.2005: 53-60)

#### **5.4.5 Encourage family support**

Good relationships between family members and health care professionals need to be fostered early on. Family members may be uncomfortable approaching nursing staff to ask questions and so should be invited to discuss their feelings and concerns. Relatives as well as patients are reassured by simple explanations of equipment, procedures and routines. In talking to the family, the nurse may elicit information about the patient’s habits, likes and dislikes and emotional reactions, which are helpful in planning care.

Explanations and instructions may have to be repeated. The family should be included in teaching programmes provided for the patient or in programmes specifically designed for them to ensure they understand the patient’s condition as an important contribution to recovery. Dynamics within the family may take a while to re-establish (Watson 1997:292).

#### **5.4.6 Lifestyle modification**

Rodgers & Vaughan (2002:2553) mentioned that harmful effects of smoking are so severe that the patient is advised to discontinue. Clarification of the prescribed diet is made. Many patients are advised to continue with a low sodium intake and a limited number of calories. Foods allowed, those restricted and meal planning are discussed. The importance of keeping the weight normal and avoiding large meals is explained. Preferably, the discussion of the diet should be with the family as well as the patient. Directions and suggestions are given to the patient in writing, and an appropriate diet booklet can be obtained from the dietician from the health education authority.

The medications to be continued are discussed, and written instructions provided. Early signs of untoward reactions are cited, and included with these are directions about what to do if they develop. For example, if an anticoagulant such as warfarin is to be continued, the patient and a family member are advised of the action of the drug and the necessary observations to recognize bleeding. They are told that bleeding from body orifices, discoloured areas of the skin (bruises and petechiae), bleeding gums, and persistent bleeding from minor cuts or injuries are to be reported immediately to the doctor or clinic. If there is dental work to be done, the patient should advise the dentist that he or she is receiving warfarin. The patient is given an identification card to carry, which states that he/she is receiving warfarin.

It should be pointed out to the patient and family that moderation in everything is a good rule for persons who have had a heart illness. Some work, exercise, rest and recreation are important for everyone. Situations that are likely to add undue strain should be anticipated and avoided. Enough time should be allowed to prevent rushing. For example, rather than run the risk of running for a bus, the patient should plan to leave earlier. Climbing, walking against a strong wind, lifting, pushing and fatigue are to be avoided. Constipation, infections and emotional upsets also tend to increase the demands on the heart.

#### **5.4.7 Health education**

Nurses must provide more intensive support and education to clients regarding primary prevention of CHD, lifestyle modification and stress management.

Crisis intervention is taught to nurses in the four-year integrated course. General nursing science modules should include patient education and emphasize the *Batho Pele* Principles at all times.

#### **5.4.8 Further research**

The researcher recommends that future research be conducted on

- The relationship between fatty diet, a sedentary lifestyle and not being overweight
- Stress factors leading to the increase in CHD

- More extensive research on the same topic, increasing the number of participating hospitals, having a mix of urban and rural hospitals or increasing the size of the sample
- Qualitative research on the same topic in order to obtain more detailed information
- The value of stress management as a preventative measure in the management of lifestyle disease in the development of a PHC strategy in South Africa
- The importance of health education as a PHC mechanism (Moreover, responsibility for those aspects of personal health, which can be influenced by health behaviour, should be included in primary and high school curricula.)
- The role of exercise in the prevention of heart disease.

## **5.5 CONCLUSION**

The study found that the Indian population is particularly prone to CHD and this susceptibility is due to a variety of factors, stress, including genetic endowment, raised serum lipids and lipoproteins, moderate obesity, lack of exercise and a high intake of saturated fats. Prudent measures such as stress management, diet and regular exercise may therefore serve to retard the development of CHD. Stress in itself is not the problem, but becomes a problem when it is not managed properly.

Primary prevention programmes, aimed at the reduction of risk behaviours on a population-wide basis and the identification, stratification and selected treatment of high-risk individuals prior to their development of disease should be the cornerstone of any approach to reduce the population's burden of CHD. Also, prevention strategies should begin in childhood. The healthcare system should benefit from population-wide efforts via health education, environmental intervention, or legislation to reduce the burden of deleterious health behaviours. This should facilitate risk-factor changes in the clinical setting. Policy makers, employers and community leaders look to healthcare providers to provide advice and leadership. Both the capacity to prevent CHD and the will to implement policies and programmes will be necessary to reduce CHD.