

**NURSE PRACTITIONERS:
IMPROVING CORONARY HEART DISEASE MANAGEMENT IN
SOUTH ASIAN CANADIANS**

by

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Abstract

Coronary heart disease rates are much higher amongst South Asian Canadians than any other Canadian ethnic group. This project asks the question, “How will a nurse practitioner implement culturally sensitive coronary heart disease interventions to improve the health outcomes of the South Asian population?” To respond to this research question, a literature review and analysis of studies describing various research data, as well as perceptions among the South Asian community, was completed. Evidence suggests that the South Asian population has a genetic tendency to coronary heart disease. More importantly, there are environmental, dietary, and lifestyle factors that might also contribute to this higher incidence. South Asians are underutilizing the traditional health services. Research indicates that health services and treatments are not culturally relevant. Madeleine Leininger’s theoretical framework, which advocates for the theory of Culture Care Diversity and Universality, is utilized to examine the literature and used to prepare culturally sensitive coronary heart disease interventions for the South Asian population. In this paper, it is argued that implementation of culturally sensitive coronary heart disease interventions delivered by a nurse practitioner can positively influence the management and the outcome of coronary heart disease in the South Asian population.

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CHAPTER ONE: BACKGROUND AND CLINICAL QUESTION

Introduction

Cardiovascular disease is responsible for more deaths of Canadians than any other disease and the majority of all cardiovascular deaths are due to coronary heart disease (CHD) (Heart & Stroke Foundation of Canada, 2005). Moreover, research data shows that the relative rates of CHD disability and mortality are highest amongst South Asian (SA) men and women living in Canada. To support this claim, the initial purpose of this project paper is to review the literature pertaining to CHD and associated risk factors in the SA population. In the paper, I will define the population at risk, describe the epidemiology of CHD in the SA population and critically analyze two Canadian studies to support the high incidence of CHD in the SA population. A literature review substantiates the proposition that culturally relevant and specific education interventions are required to improve the CHD management in the SA Canadians. This paper will discuss how traditional risk factors do not fully explain the high rates of CHD in the SA population and how the current clinical practice setting and Canadian practice guidelines are not meeting the needs of this group. The Leininger theory of Culture Care and Universality is introduced and its concepts for developing CHD interventions (Leininger, 2002). Finally, culturally sensitive CHD interventions delivered by a Nurse Practitioner (NP) will be proposed to positively influence CHD management and improve health outcomes in the SA population.

Background

Cardiovascular disease includes disorders such as coronary heart disease (CHD), ischemic heart disease (IHD), coronary artery disease (CAD), arteriosclerosis, hypertension, and stroke. For the purpose of this paper, CHD, IHD and CAD are considered to be the same entity and will be referred as CHD only. According to the Heart and Stroke Foundation of Canada (2005) the traditional risk factors for CHD fall into two categories: modifiable and non-modifiable. Modifiable risk factors are high blood pressure, high blood cholesterol, diabetes, obesity, excessive alcohol consumption, physical inactivity, smoking, and stress. Non-modifiable risk factors include gender, family history, ethnicity, and genetics.

CHD is responsible for more deaths of Canadians than any other disease. Canadian statistics from 2005 cited 71338 deaths from cardiovascular disease (Statistics Canada, 2005). In Canada, 17% of the total population is born elsewhere. The largest ethnic groups in Canada are composed of people with SA and Chinese origins (Statistics Canada, 2006; Appendix 1). The SA population, who represent one-fifth of the world's population, is mainly individuals from India, Pakistan, Bangladesh, and Sri Lanka (Gupta, Singh & Verma, 2006). Approximately 5%, which is over one million SA individuals, reside in Canada, representing the largest visible ethnic minority in this country (Statistics Canada, 2006; Appendix 1). Multiple studies of SAs have confirmed that this group experiences the highest rate of CHD in Canada. For example, an analysis of Canadian data of 1.2 million deaths from 1979 to 1993 revealed that rates of mortality from CHD were higher as discussed below in SA men compared to both European and Chinese men in Canada (Sheth, Nair, Nargundkar, Anand, Yusuf & Phil, 1999). In

addition, the rates of CHD were also much higher in women of SA descent as compared to European and Chinese women. The age-standardized proportional mortality from CHD was much higher in men and women of SA descent (42% and 29%, respectively) than in men and women of European decent (29% and 19%, respectively) and Chinese descent (18% and 11%, respectively) (Sheth et al., 1999). Additionally, SA men were developing CHD before the age of 40. According to Sheth et al. (1999) “the high rate of death from IHD documented in Canadians of South Asian origin in our study is consistent with reports from other countries” (p.137). This is further supported by Bhopal (2000) who analyzed 19 studies on the risk of CHD in the SA population in a systematic review, mostly based on the United Kingdom research. The objective of this review was to collect evidence about the rate of coronary heart disease in the SA population in comparison to the Caucasian population. The findings on CHD confirm its higher prevalence in the SA population. When health care utilization by the SA population was examined, Bhopal found that SA patients had higher admission rates to coronary care units when compared with Caucasian patients. Mortality studies provided a clear picture of a higher rate of CHD in the SA population in the United Kingdom in Bhopal’s systematic review.

Context

British Columbia (BC) has the second highest population of SAs in Canada. Statistics show that approximately 25% of the SA population of Canada lives in BC (Statistics Canada, 2006; Appendix 1). There seems to be both a lack of accessibility and cultural specific interventions and information on CHD for the SA community. This

perception led to a literature review and proposed NP based CHD interventions to address the management of CHD in this high risk group.

The author's interest in this topic was inspired by her past clinical and personal experiences with her local SA community. Consequently, it prompted her to examine two Canadian studies and the literature related to this topic. This information was important for developing the author's research question for this paper. Furthermore, the author's personal encounters with SA individuals with cardiovascular disease have heightened her awareness of the importance of improving access to information and management of coronary heart disease. The author has also discovered that there is a great need for more aggressive education of the population at risk and for primary care preventions in order to positively influence CHD disease in the SA community. The following two studies were examined because they were Canadian studies and they provided Canadian statistics and solid evidence to support the claim that this population experiences the highest prevalence of CHD with unique risk factors.

The first Canadian study reviewed was titled the Study of Health Assessment and Risk in Ethnic groups (SHARE) (Anand et al, 2000). This study showed that the occurrence of CHD in SA individuals was 10.7% compared with Europeans and Chinese rates of 4.9% and 1.9%, respectively. Moreover, the SA subjects had less atherosclerosis than the Europeans subjects, yet the SA subjects had higher cardiovascular disease rates. SA individuals in this study also had an increased prevalence of impaired glucose tolerance (IGT) of ($P < 0.04$), higher total and low density lipoprotein (LDL) cholesterol of ($P < 0.05$), lower high density lipoprotein (HDL) cholesterol of ($P < 0.05$), higher triglycerides, and elevated lipoprotein (a) levels of ($P < 0.02$). This pilot study revealed

that SAs had a higher prevalence of impaired glucose tolerance, dyslipidemia and elevated lipoprotein (a) concentration, factors thought to be associated with premature CHD in this group (Anand et al., 2000). Additionally, both SA men and women had the greatest amount of abdominal adiposity as measured by waist-to-hip circumference ratios, a predisposition to metabolic syndrome. According to Bedi, Singh, Syed, Aryafar and Arora (2006) metabolic syndrome is known to be associated with CHD and the prevalence of CHD, MI and stroke is increased by two to three times in people with metabolic syndrome than people without it.

The second study reviewed, the INTERHEART case control study of acute myocardial infarction involving 52 countries, confirmed that traditional modifiable risk factors play an important role in predicting CHD in all individuals in all regions of the world (Yusuf et al., 2004). The INTERHEART study concluded that in all ethnic groups, modifiable risk factors account for >90% of the population's risk for myocardial infarction. These risk factors included smoking, hypertension, diabetes, abdominal obesity, psychosocial stress, and dyslipidemia. Therefore, these risk factors need to be regularly assessed and managed in everyone who is at risk for CHD. Moreover, the data from the INTERHEART study was also used to assess the relationship between body mass index (BMI) and waist-to-hip ratio (WHR) with the incidence of myocardial infarction. The results clearly indicated that waist-to-hip ratio was a stronger predictor of myocardial infarction worldwide across all age and ethnic groups than body mass index (Yusuf et al., 2005).

These studies clearly demonstrated the differences in traditional risk factors for CHD between the SA and the non-SA groups. Due to the SA population CHD risk

profile this group requires a focused approach to improve CHD management.

Additionally, identifying other risk factors unique in SA population is important in order to develop tailored interventions for the prevention of CHD in this population.

Guidelines

There are a number of guidelines that address CHD in the SA population. The World Health Organization (WHO) (2004) reviewed growing evidence that SA individuals were at risk for excess morbidity and death at lower Body Mass Index (BMI) levels typically used as a marker for high risk in the general population. BMI is calculated based on weight and height measurement. The WHO data led to the conclusion that SA individuals seem to develop insulin resistance and diabetes at lower BMI levels than the current cut-off points for overweight individuals at a BMI>25. Research suggests that the SA population has a different association between BMI, percentage body fat and health risk compared with European populations. The World Health Organization has adjusted the guidelines for overweight and obesity to BMI of 23 and 25 respectively for the SA population.

The International Diabetes Federation (IDF) (2006) established a single worldwide definition to use as a clinical tool to diagnose metabolic syndrome. The IDF defines metabolic syndrome in an individual with central obesity and any of the two of the following four factors: Elevated triglycerides>1.7, reduced HDL cholesterol men < 1.0 and women <1.3 raised blood pressure>130/85 and elevated fasting plasma glucose (FPG) 5.7-7.0. The IDF recommends use of gender and ethnic specific waist cut-off points for the SA population regardless of country of residence. Central obesity is measured by waist-to-hip ratio or waist circumference in SAs. Metabolic syndrome

becomes a risk when waist measurement of SA men and women are >90cm and >80cm, respectively. The IDF strongly recommends using these cut off points for the SA individuals.

McPherson, Frohlich, Fodor and Genest (2006) recommend treatment and prevention of cardiovascular disease. Conventional risk factors identified in the Framingham report are not sufficient to predict the high rates of CHD in the SA population. High rates of diabetes and CHD among SAs needs to be considered. Lifestyle changes remain the cornerstone of preventing CHD, which essentially includes consuming a diet high in fruits and vegetables; maintaining a healthy weight (waist circumference < 90cm in men, <80cm in women) and engaging in regular physical activity.

Although research demonstrates that the SA population is at a higher risk for CHD, there is little data regarding preventative and management strategies for the SA population at risk for CHD in Canada. The data from Statistics Canada (2006) shows that the SA population is the largest visible minority in Canada and it is the second largest ethnic population in BC. People of SA origin comprised >6% of the total BC population (Statistic Canada, 2006). Although there are several initiatives in place for minority ethnic groups in B.C., such as translated material on cardiovascular diseases and some short term programs funded in bigger communities, this information is neither standardized nor readily available across the province (Health link BC, 2009). The current guidelines and protocols used in this province do not clearly or effectively reflect modifiable cardiovascular risk factors in the SA population; such risk factors are the main determinants for reducing the high incidence of CHD disease in the SA population.

Facilitating behavioral change and access to information that is culturally tailored and easy to understand are paramount in the successful self-management of cardiovascular health in this population. Building on the background, the context and the guidelines which now have been explored, the research question will guide the rest of this discussion: “How can a NP implement culturally sensitive coronary heart disease interventions to improve the health outcomes of the SA population?”

Nurse Practitioner Role

The role of NP has been in existence for more than 20 years in Canada. Originally, the NP role was developed in response to a shortage of primary care physicians. It has been documented that the attempts to integrate the NP role outside of “Outpost nurses” setting was unsuccessful, mainly because of physicians’ adverse view of NPs and a lack of legislation in place (Browne & Tarlier, 2008). NPs in Canada now have legislation that protects the NP title and legislation that allows NPs to practice in 12 of the 13 provinces and territories (Canadian Institute of Health Information, 2006). In British Columbia, NP scope of practice includes diagnosing and treating acute and chronic illnesses and prescribing medications. NP’s mandate is to place a strong emphasis on patient education, teaching and improving access to services available thereby promoting health and preventing illnesses by assisting families and communities (College of Registered Nurses of British Columbia, 2005).

A nurse practitioner is a registered nurse, generally with a Masters in Advanced Nursing Practice, who works within an expanded scope of practice that includes assessing, diagnosing and treating variety of chronic and acute illnesses. According to the Canadian Nurses Association (CNA, 2002), a NP provides a direct entry to the

healthcare system for disease management, diagnosis, treatment and prevention and promotion. A NP works with other health care professionals such as doctors, nurses, dietitians, pharmacists and other primary care givers in the community to provide a comprehensive plan of care. The scope of practice is focused on health promotion and disease and injury prevention at all three levels of care which includes primary, secondary and tertiary levels of prevention in their practice. A NP is able to function at all three levels autonomously and in consultation with physicians or other nurse practitioners as outlined in the NP scope of practice in British Columbia (College of Registered Nurses of British Columbia, 2005).

Several studies were examined to validate the unique role of a NP and its effectiveness in primary care as compared to physicians. Horrocks, Anderson and Salisbury (2002) conducted a systematic review of 11 randomized trials and 23 prospective observational studies to evaluate whether nurse practitioners in the primary care can provide equal care to physicians. These authors noted that patients of NPs were more satisfied with the care, had longer consultation, and received more investigations compared to physicians while all the other variables of health outcomes were equal to care provided by physicians (Harrocks, et al., 2002).

Research also confirms that NP's provide high quality, effective, and economically efficient care. A research study by Mason (2005) discusses the role of a NP in improving adherence to medical routine and patient outcomes through a NP run lipid management program. The research clearly indicated that a NP run primary care lipid clinic helped patients achieve their lipid targets more efficiently compared to the standard management by their primary physician. It is argued that through more primary

care programs, NPs as team leaders, who can assess, and diagnose patients, including treatment of cardiovascular risk factors, initiate pharmacotherapy when needed, then establishing individualized program that includes education, support and follow-up can result in an overall better continuity of patient care and reduction in risks of cardiovascular disease (Mason, 2005). This expanded scope of practice of a NP differentiates the NP role from the other nursing health professionals.

In summary, the national and the international (CCS, 2006; IDF, 2006; WHO, 2004) recommendations are not being optimized as evidenced by the high rates of CHD in the SA population. Current health care provision is not adequately reducing or managing risk factors in this population. Therefore, NPs could have a key role in improving the management and health outcomes in this population through the development of culturally sensitive educational interventions. Additionally, culturally appropriate health education could also be adapted by other NP's and primary care health providers in the community. The unique contribution of NPs would therefore arise from the expanded scope of practice (College of Registered Nurses of British Columbia, 2005), education focus and proven success in the management of chronic disease as evidenced in the literature. This also provides an opportunity to either use the existing guidelines or develop new culturally sensitive screening tools to better management and outcomes in this population.

Research Question

The goal of this project paper is to substantiate the need for group specific interventions to effectively improve CHD management in the SA Canadians. Accordingly, the author's research question for this: "How can a nurse practitioner

implement culturally sensitive coronary heart disease interventions to improve the health outcomes of the South Asian population?”

The writer believes that it is essential to develop CHD interventions based on a theoretical framework in order to provide the best possible management of CHD. For the purpose of this project, Madeleine Leininger’s Culture Care Theory (Leininger, 2002) and its related concepts will serve as a framework to develop culturally relevant CHD interventions for this population.

Theoretical Framework

Theory Description

Madeleine Leininger, the founder of transcultural nursing, first developed her ideas in the mid -1950s. Her transcultural health model was further developed and later expanded, in the 1970s. The purpose of her theory was to develop strategies that would consider different cultures, patterns, and life ways in the delivery of nursing care. Major concepts that are central to this theory are culture, caring, and culture-care differences and similarities. Other major concepts include the distinctive types of care, generic care-emic, and therapeutic care-etic (Leininger, 2002).

Madeleine Leininger (2002) stated that “culturally based care is essential for well-being, health, growth, survival and in facing handicaps and death” (p. 192). In 1995, Leininger further developed a Theory of Culture Care Diversity and Universality (TCCDU). Her new theory included seven cultural and social structure dimensions: technological, religious, kinship, value, political, economic, and education factors (Leininger, 2002). She describes two types of practices that exist in every culture. The first type is indigenous-emic, and it is the oldest form of practice. Generic or emic care is

often referred to as “folk caring” practices or traditional practices of a particular culture. Generic caring consists of culturally derived interpersonal practices, and it is essential for the growth, health, and survival of humans (Leininger, 2002.). The second type of caring is described as –etic or professional care, which includes cognitively learned knowledge and skills that are achieved through formal and informal professional education.

Leininger’s theory contends that both folk care (emic) and therapeutic care (etic) are important. If the two are not integrated, client health, well-being, and recovery from illness might not be optimal. “Standard” health care (education, diagnosis and prevention and treatment of disease) might be culturally incongruent care and, therefore, not effective (Leininger, 2002). Hence, Leininger argues that it is essential to recognize the similarities and differences between therapeutic (etic) and generic (emic) to facilitate the delivery of culturally congruent care (Leininger, 2002).

According to Leininger (1995), three predictive modes of care are derived and based on the use of generic (emic) care knowledge and therapeutic (etic) knowledge obtained from research and experience. These three modes for congruent care include the following:

- 1) Cultural care preservation or maintenance,
- 2) Cultural care accommodation and negotiation
- 3) Cultural care repatterning or restructuring.

The Leininger’s Theory of Culture Care Diversity and Universality (Leininger, 2002) and its three modes aforementioned will be used in the discussion as a tool for developing culturally sensitive interventions for improving CHD management in the SA population.

CHAPTER TWO

Literature Review

A thorough literature review was carried out to examine the research question for this paper. This chapter will describe the research processes and analyze the research articles.

Research Process

The Royal Inland Hospital (RIH) library and the University of Northern British Columbia (UNBC) web library were utilized for the majority of research on CHD in the SA population.

Search Strategy

The search strategy involved three separate searches which included electronic database search, website search, and hand search of reference lists of literature review articles and health guidelines. The timeline encompassed literature from 1990 to the present. This specific timeline was selected to capture the most current practices.

Electronic Databases

Electronic databases utilized included Medline, CINAHL (Cumulative Index of Nursing Allied Health Literature), and Cochrane Database of Systematic Reviews, Health Sciences, and Blackwell Synergy. Additionally, the literature search was supplemented using the World Health Organization, the International Diabetes Federation, and the Canadian Cardiovascular recommendations for this population. Due to the uniqueness of the population, Medline, Health Sciences, and Cochrane databases were deemed most useful by the writer. The main searches are summarized in table one.

Table one: Search Terms and Key Words

Coronary heart disease in SAs in Canada and outside Canada	Culture
Leininger theory	Dietary practices
Cardiovascular disease in SA	Sedentary lifestyles/physical activity
South Asians	Obesity
International guidelines for SAs	Coronary heart disease risk factors
World Health Organization	Cultural assessment
Nurse practitioner in primary care	Coronary artery disease
Physical activity	Nurse practitioner in Canada
	Diabetes type 2

Website Search

A general internet search engine using “Google” was conducted using terms “Coronary Heart Disease in South Asians” and it generated 137,000 hits. Electronic databases generated 131 hits. Various international websites were searched such as the Australian Heart Foundation website on guidelines for preventing cardiovascular event in people with CHD, the American’s National Clearing House website and the United Kingdom’s Joint British Societies guideline’s website for cardiovascular disease in the SA population. The results retrieved yielded information that was already included in the paper.

Hand Search of Reference lists

The literature search was further supplemented by hand searching relevant journal titles and journal articles and their reference lists. Hand search journals included Journal

of the American Heart Association, the Lancet, Journal of Transcultural Nursing, BMC British Medical Journal (BMJ), Journal of Public Health, Canadian Medical Journal, and Canadian Clinical practice guidelines.

Inclusion and Exclusion Criteria and Review Process

The research question was broken down and several searches were done as follows: CINAHL was searched using headings “Leininger” and “Culture Care” and Medline was searched using headings “South Asians” and “Coronary Heart Disease”. Both data bases were searched using headings “Coronary Heart Disease in South Asians” or “Cardiovascular risk factors and South Asians” followed by “Nurse Practitioners” and “Primary Care interventions”. The search term “Nurse Practitioners and “South Asians” yielded no results. The total number of studies generated was 131 articles. Inclusion criteria stipulated that studies would be systematic research articles, randomized controlled trials, or qualitative studies, and the target population would be SA population in conjunction with any of the modifiable cardiac risk factors. The timeline encompassed literature from 1995 to the present. The majority of the articles reviewed were from Asia or the United Kingdom. The search was limited to papers in the English language and to studies of populations living in the United Kingdom or North America. The articles selected and reviewed were related to prevalence of CHD, risk factors for CHD, diabetes among SAs, and culturally appropriate intervention programs in the countries mentioned above. Literature on diabetes was included because the research shows that the SA population has increased incidence of diabetes which is a strong risk factor in developing CHD. Literature on NPs in primary care management was included to support the management aspect of the research question. Using this inclusion criteria, CINAHL and

Medline databases deemed most helpful, and twelve articles from the list of twenty eight articles were selected that could answer the research question collectively. Several common themes were generated by summarizing the findings from these articles. In addition to the databases searches, information available through the graduate studies on NP's scope of practice was also utilized.

Research Methods and Theories

The majority of papers reviewed did not use a theoretical framework. The structure of the papers included systematic reviews, ethnographic qualitative studies, randomized controlled trials, research articles and semi-structured interviews (focus groups).

Literature Review and Analysis

The literature reviewed was congruent with the cultural and social structure dimensions of the Leininger Theory of Culture Care Diversity and Universality (LTCCDU). The following research articles were reviewed and four key themes arose from the literature; CHD risks factors specific to SA population, low levels of physical activity, language barriers and delivery methods of health services.

Additionally, as evidenced in both SHARE and INTERHEART studies, SA population has an increased prevalence of impaired glucose intolerance, dyslipidemia, increased abdominal obesity, and hypertension, risk factors that clearly play an important role in developing CHD in this population (Anand et al., 2000; Yusuf et al., 2004; Yusuf et al., 2005). Additionally, this cluster of risk factors is known as metabolic syndrome which increases the prevalence of CHD in the SA population by two to three folds.

CHD Risk Factors

Mathews and Zachariah (2008) completed a literature review of 31 studies in which CHD risk factors such as insulin resistance, central obesity and dyslipidemia in the SA population were reviewed. The SA population is at risk for CHD at a younger age, and has higher rates of diabetes. However, research also showed that SAs have lower average total cholesterol and lower high density lipoprotein (HDL) levels than Caucasians and other ethnic groups in the United States. It is further noted in a literature review that conventional risk factors identified in Framingham are not satisfactory to predict the high rates of CHD for SA individuals living the United States (Mathews & Zacharia, 2008). Hence, it is reasonable to suggest that clinical assessment and management needs are different for the SA population than for the mainstream population.

Both CHD and diabetes are often linked with risk factors of high consumption of dietary fat, physical inactivity, and obesity. The SA population is at risk for diabetes even at lower Body mass index (BMI) levels. Research confirmed that risk factors of central obesity and insulin resistance are both common in the SA population, as a result, the World Health Organization recommends that health action to prevent CHD in this population should start by aiming for a BMI of 23 rather than 25.

The IDF (2006) have also recently introduced gender-and-ethnic specific guidelines for identifying individuals at high risk for metabolic syndrome by measuring waist circumference to confirm central obesity. SAs have tendency to accumulate abdominal fat instead of developing generalized obesity. Therefore, IDF recommends using the waist circumference in SA men and women of 90cm and 80cm, respectively, as

the threshold for CHD risk profile. Metabolic syndrome is a cluster of risk factors including abdominal obesity, high blood pressure, insulin resistance and other conditions related to CHD risk factors (IDF, 2006).

This study clearly indicates that the SA population is at risk of developing CHD at younger age, and has high rates of modifiable risk factors which are contributing to their unique CHD risk profile.

Low Level of Physical Activity

Low levels of physical activity or fitness is considered as a modifiable risk factor for CHD, obesity, and diabetes (Fischbacher, Hunt & Alexander, 2004). Fischbacher et al. (2004) conducted a systematic review of 12 studies in adults and 5 studies in children from the United Kingdom revealed lower levels of physical fitness and activity in the SA population compared to the general population and in relation to the physical activity guidelines. The differences reported varied across the studies, but it was substantial, broadly consistent, and not clearly related to the method of measurement. The Health Survey for England found that Indian, Pakistani, and Bangladeshi men were 14%, 20%, and 45% less likely than the general population to meet current guidelines for physical activity. Higher levels of physical activity are associated with higher levels of HDL cholesterol, which is also protective against heart disease. Population based studies related to physical activity conducted in the United Kingdom have consistently found that the SA population have lower HDL cholesterol levels than the general population. It is likely that relatively low levels of physical activity are contributing to the increased risk of CHD and diabetes amongst SAs; and therefore, more research is needed on effective ways to increase physical fitness in this population. Methods of assessing physical

activity and physical fitness varied in each study and lacked consistency in regards to the types and number of questions in each study. Further, some studies were translated and others were performed in English. In all studies, questionnaires were used to collect information measuring physical activity and level of participation. The interpretation of physical activity, exercise, and leisure were defined differently amongst people who speak the same language. The lack of language skills and cultural differences further caused interpretation challenges which could have impacted the reliability and validity of the data. Questions used were developed in English and then translated into other languages. Most of the studies reviewed by Fischbacher et al. (2004) provided minimal or no details of the translation process used to ensure its quality and accuracy. It is not clear how much definition and language factors may have impacted the results of these studies. Fischbacher et al. (2004) suggests future research needs to check the validity and reliability of translated and adapted survey questionnaires so they can be conceptually and functionally similar for all the participants. Nonetheless, levels of physical activity were lower in all SA groups than the general population.

Language and Culture

Hawthorne (2001) conducted a randomized controlled trial using a structured health education program for the British SA population. The four topics chosen by the focus group pertained to diabetic diet, the value of glucose monitoring, diabetic complications, and services offered by the diabetes clinic. The program was delivered by a female link worker who was fluent in Punjabi and Urdu. She received intense training by doctors, nurses and dieticians and was closely monitored by them. The findings revealed that nearly everyone improved their knowledge and glycemic scores in both

intervention and control groups. However, the illiterate women did not do as well as the literate cohort in both knowledge and glycemic control after six months in both control and intervention groups. Their poor knowledge and management of diabetes may also reflect the difficulty patients have obtaining information that they can understand. This information is more readily available to other patients. Linear regression analysis of glycemic control in the whole group using changes in hemoglobin (Hb)A1C over 6 months were -0.37, 95% Confidence interval -0.48 to -0.25, $P(<0.01)$ and the women receiving health education were -0.58, 95% Confidence interval -1.11 to -0.04, $P=(0.03)$. In both the control and intervention groups, women entered the study with poor glycemic control overall; however, after 6 months of intervention, men and women achieved the same scores even though women started with lower scores than men. The illiterate women showed moderate improvement in knowledge after 6 months of intervention, but they lacked a corresponding improvement in HbA1c. Better outcomes could have been achieved with more frequent educational classes, reinforcing information over a longer period of time, and offering reminders such as flashcards or audiotapes.

Mathews, Alexander, Rahemtulla, and Bhopal (2007) discussed a control project in the United Kingdom, "Khush Dil" (happy heart), in which SAs with established CHD or with CHD risk factors were offered screening and health promotion activities. Culturally appropriate information on diabetes, one to one nutritional counseling, exercise classes, cooking classes, and stress management skills via various workshops over a period of one year was offered. The results showed a significant reduction in weight, BMI, blood pressure, and cholesterol and triglycerides levels. In addition to this reduction in CHD risk factors, the project demonstrated that culturally sensitive and

accessible information led to changes in the participants' motivation to maintain diet and lifestyle changes. The project carried out a practical, service development program.

Visram, Crosland, Unworth, and Long (2007) collected data from SA women of their experiences and perception of a cardiac rehabilitation program. The authors noted the poor participation of these women in the program. In this population, the main factors to overcome included lack of confidence, family commitments, language barriers, and cultural misconceptions. The role of the session leader was shown to be pivotal because the women were more likely to attend the class if it was taught by a woman regardless if the leader could not speak their language. Similarly, the selection of an appropriate venue and culturally acceptable activities were deemed to be essential to the success of cardiac rehabilitation services for this female population group. Moreover, the SA women were more likely to feel motivated and comfortable with women from similar backgrounds. The rehabilitation sessions improved the physical and mental health of these participants, and helped reduce feelings of isolation. These interviews provided some helpful insights into developing CHD interventions for SA women. The study's findings emphasized that there is a need for more opportunities to engage or improve access to facilities for SA women. This study used a qualitative evaluation research approach, which involved the collection of data during the delivery of the intervention (Visram et al., 2007).

Vyas, Haidery, Wiles, Gill, Roberts, and Cruickshank (2003) conducted a pilot randomized trial in the UK, to investigate whether a primary or secondary care education package could improve understanding of diabetes amongst SA patients. The findings revealed that specialist-led (doctors, diabetic nurses, dieticians) primary care clinics did

not improve scores for knowledge awareness and self management of diabetes in this population. One reason proposed for these poor results is that the frequency of sessions and the length of one year to implement new education and management tools were not sufficient enough to bring about more change. According to the investigators, the most probable explanation for the poor outcome from a specialist based education package was the use of traditional didactic method of teaching. Less formal educational sessions, in a relaxed setting of only males or females, may have been a better choice for this population. In such groups, individuals might have asked their questions and discussed new information more freely, and thus gaining more understanding. Furthermore, only 30% of the participants felt they were fluent in English, and 21% were unable to read in their own language. The low rate of literacy in this group highlighted the importance of useful information in the native language, and educators having a cultural awareness of the SA population. .

Delivery of Services

Baradaran, Jones-Knill, Wallia, and Rodgers, (2006) conducted a randomized controlled study on the effectiveness of a diabetes education program in a multi-ethnic community in England. The purpose of the study was to develop culturally appropriate educational interventions for SAs with type II diabetes, based on the results from questionnaires on knowledge, attitudes, and management of diabetes. This study also sought to investigate if these types of interventions could yield statistically significant improvements, compared to control groups. The results of this study showed significantly higher mean scores in the intervention groups. The comparison scores on knowledge, positives attitudes towards seriousness of diabetes, knowledge about disease

complications, and self-management of diabetes between the ethnic intervention and the ethnic control groups were not statistically significant. One of the contributing factors for the trend to improved scores for all groups could be participants' daycare centre meetings, where they exchanged information weekly. Baradaran et al. (2006) proposed that future studies should be aimed at developing culturally appropriate outcome measures, addressing translation issues for non-English speaking populations, and exploring motivating factors and strategies for diabetes self-management.

Oliffe, Grewal, Bottorff, Luke, and Toor (2007) performed an interpretive ethnographic qualitative study of 14 SA men drawn from a single Canadian city. The ethnography was vital to this study in order to understand the connection between gender, cultural, and health beliefs. The methodology perspective of observing and talking with participants revealed a great deal about the resilience and sustainability of culture, as well as its connection to health and illness. This study was conducted in Surrey, B.C. at a wellness clinic located in a temple, conducted by the first three authors of this paper with nursing background and as well as by the observers for this study. A temple is a place where men routinely congregate. It offered the potential for early detection of CHD, harm reduction, and health promotion, while also providing a means to direct individuals to more formal healthcare services. The study yielded information that can be used effectively to design a targeted community-based health program for this particular population. This study also provided insight into SA men's health, illness behaviors, and beliefs. The wellness clinic was successful in providing accessible services because participants often gathered to drink tea, eat at the temple, and they could also attend the wellness clinic right in the temple. These findings were essential in answering the

research question for this paper. This study demonstrated that providing informal healthcare services at the Gurdwara was successful in providing accessible and effective health services.

In summary, the main themes highlighted in the literature review on CHD in SAs, were high CHD risk factors amongst SAs, language barriers, low level of physical activity and poor access and usage of health services available. Keeping these themes in the forefront, the Leininger Culture Care theory and its modes will be applied to guide the strategies for the proposed research question for this paper. The three modes of LTCCDU theory will help guide interventions, decisions and actions and deliver culturally congruent care.

CHAPTER 3

Discussion and Implications of Findings

The present context of health care services is the same for the SA population and the Caucasian population in BC. However, evidence in the literature review demonstrates that the SA population has the highest occurrence of CHD, and they experience CHD at an early age when compared to other ethnicities. A higher incidence is not fully explained by conventional risk factors for CHD. However, there are five main themes summarized from the literature: low level of physical activity across all SA individuals, language and cultural barriers, traditional didactic methods ineffective, underutilization of the current CHD services and lack of motivating factors. These themes should be utilized as a basis for developing culturally specific strategies for the SA population.

The first theme, low level of physical activity corresponds to lower HDL in SA population. Accordingly, this finding further validates the importance of finding ways to increase their level of physical activity. Although Fischbacher et al. (2004) suggested ways in which their study design educational intervention program delivered for SA patients with type 2 DM can improve knowledge, attitude and self-management of their health. It is well documented that regular exercise is also associated with a reduction in the risk of CHD and diabetes (Fischbacher et al., 2004). A NP strategy would include an assessment of physical activity of the SA population and help coordinate and co-develop an exercise program or a walking program in partnership with the community to ensure culturally acceptable activities.

The second theme, language and cultural barriers show that when a specialist led study using traditional methods of teaching, there was a poor outcome. Thus, where the

information was culturally appropriate, and delivered over a longer period of time there was a better outcome (Vyas, et al., 2003). Further language and culture posed a potential barrier to accessing health services that are usually provided by a family physician. Linguistic challenges, religious beliefs, and gender specific sessions must be factored into planning a nutritional, exercise, cooking classes or health education sessions. Frequent education classes and a reinforcing of information over a longer period of time, using pictorial flash cards as visual aids may not be adequate for the illiterate part of the population (Hawthorne, 2001). A NP strategy would be to evaluate literacy and knowledge in men and women separately, and develop a forum adjusted to the literacy level on CHD risk factors, or on healthy living in partnership with the SA group to respect their cultural beliefs and values.

The third theme: delivery of health services shows that not only motivating factors and strategies are important but also how the services are delivered is as crucial to self-management. As discussed in the project in Surrey BC, where the services are provided in the religious temple, not only does it provide accessible services but also it is a place where a NP would have a great access to this group to provide services and obtain a greater insight into their health (Olfie et al., 2007). Prior to developing CHD interventions, important factors that must be taken into consideration are: to present the program to male and female groups separately or gender specific session, to select an appropriate venue, to be conscious of the gender of session leader, to consider the commitment required, the travel needs, language skills, and religious and cultural health beliefs (Visram et al., 2007). A NP strategy would be to present CHD information and

interventions at a place that is easily accessible and important to this population, such as the temple or the mosque to facilitate NP's relationship with the SA community.

The fourth and the fifth themes are the use of culturally sensitive information and underutilization of the current CHD services. Culturally sensitive information leads to changes in participants' motivation, and maintain diet and lifestyles. The key themes surfaced in the literature review for program planning included utilizing a place where people go regularly, and providing culturally sensitive and accessible information pertaining to CHD risk factors. Currently, the SA population is cared for as the Caucasian population with no ethnic or gender specific guidelines as outlined in the WHO or in the IDF guidelines. Using these guidelines for this group would help identify SA individuals at risk of developing CHD and metabolic syndrome early hence providing early treatment and management. This would become a targeted community-based health promotion program. A NP strategy would be to identify individuals at risk for CHD using the culturally specific IDF and WHO guidelines, and assist them in making culturally acceptable modality of treatments such as lifestyle changes, diagnostics or medications. This evidenced based strategy could also be used to educate other NP's and primary care health providers in the community

These findings support the argument that culturally sensitive CHD interventions for the SA population in a readily accessible location would provide better outcomes. It is also evident that prior to introducing these interventions, cultural factors must be considered. Browne & Tarlier (2008) advocate that a portion of NPs time and effort must be allotted to advocating for changes that are the root of many medical conditions they are required to manage. These strategies would allow the NP to evaluate literacy levels

in SAs, their knowledge about CHD, their ability to understand the educational material, cultural barriers to accessing services and acceptable methods of presenting health education. These strategies should also help the NP and the team to explore more innovative methods that will reach and benefit the SA population.

NPs that are regular and known to the community can play an integral part in bridging this gap of accessing primary health care (Browne & Tarlier, 2008). A NP can engage the community leaders on these health initiatives, and ensure that information is delivered in an effective and culturally acceptable manner. When specifically addressing the SA issues, it is important for the NP to be knowledgeable as to the cultural beliefs of the SA community. NP can work in partnership with individuals and organizations to address health and assess disparities consistent with the fundamental tenets of primary health care (World Health Organization, 1978). Therefore it is important that a NP can work in partnership with key people in the SA community and other health care professionals who are culturally sensitive to providing health care information and promoting health equity consistent with the fundamentals of primary health care.

Peterson, (2007) discusses “short physical activity counseling” as a strategy to promote physical activity in adults. Five A’s approach (Assess: beliefs, values, social support from family, friends, current health conditions, barriers; Advice: print hand outs on physical activity, offer recommendations to minimize barriers or on ideas on physical activities; Agree: collaborately establish methods of physical activity; Assist: provide community resources or identifying strategies to meet goals of physical activity or assisting with the basics of starting a walking program; Arrange: regular follow up to promote adherence and evaluate progress of individuals, all factors important to the

success of a physical activity) has shown to be effective in promoting physical activity (Peterson, 2007).

Theoretical Underpinnings

In order to develop CHD interventions to improve CHD risk factors in the SA population, the Leininger Culture Care theory and its concepts are applied to guide the proposed research question for this paper. The three major modes in Leininger's theory help guide interventions, decisions and actions to deliver culturally congruent care. The goal of this theory is to provide culturally congruent care to the target population. The main tenet of the theory is that the NPs must recognize and understand cultural values, attitudes and behaviors of the target population and the resultant challenges to effective care.

The first mode of Culture care preservation and or maintenance proposes that health practitioners help cultures preserve and retain beliefs and values which are beneficial to individuals in order to maintain well being (Leininger, 1995). The SA community practices such as Sunday temple, religious music, and group dancing or weekly family gathering positively affect the health of these people. The theory advocates embracing the useful attributes of a culture to provide culturally congruent care (McFarland & Eipperle, 2008). These attributes may include a NP visiting a religious place to meet people, or attending a cultural fair to name a few of examples as a way to develop a relationship with the community. A NP needs to be aware that this population group often use "folk care" such as herbs, home remedies to help promote comfort for minor ailments. These products may interact with western treatments and, therefore NP's must be cognizant of these traditional practices.

The second mode of Culture care accommodation and-or negotiation proposes that health professionals assist people to adapt or negotiate for culturally congruent, safe and effective health care (Leininger, 1995). This mode is useful in guiding NPs in identifying cultural factors that challenge a population in learning about health and becoming involved in managing individual health needs (McFarland & Eipperle, 2008). Here, major barriers include language difficulties and lack of motivation to commit to regular exercise programs. Cultural expectations and preferences such as style of learning (group vs. individual) and physical activity (mixed vs. separate gender) must also be considered. Another consideration is the traditional roles of family members (who goes to learn; who cooks; who has permission to participate in a CHD educational module). The above information will assist in designing an appropriate plan to implement interventions that are compatible with their culture values and promote satisfying health care outcomes.

The third mode of Culture care repatterning and/or restructuring (Leininger, 1995) proposes that health professionals help people modify their lifeways for better health practices, or outcomes. It is important that this population is well informed about CHD in order to make changes in their cultural practices. Both the NP and the SA population need to participate in a plan and implement interventions collaborately. Education can be facilitated by NPs using various methods of communication, including printed material on CHD specifics to SA population or organizing teaching forums and informal education sessions in a location commonly used by the population to enable a more accessible setting (McFarland & Eipperle, 2008). In summary, it is important that the NP uses the three modes of care, and caring with respect for the client's beliefs, and values

regarding their health; advocate mutually agreed safe and beneficial, culturally congruent care.

Strategies to Implement CHD Interventions by NPs

The intent of the writer is to consider factors and strategies necessary specifically tailored to the SA population. A review of studies in primary care has revealed that NP consultations lead to high levels of patient satisfaction and high quality of care (Dierick-van Daele, Metsemakers, Derckx, Spreeuwenberg and Vrijhoef, 2008). Ideally NPs need to consult with the SA population in a way that meets their needs. For example, people with poor literacy should have printed material in their language that utilizes pictures and diagrams for the ease of understanding. This information will also be disseminated in a place where SAs congregate for cultural or religious events, such as the neighborhood mosque or temple. In order to implement this successfully, the NP should present information separately to men and women because this is most congruent with the culture. The primary goal of these CHD strategies is to develop interventions that target lifestyle changes of the SA population. Therefore, the main focus will be to develop interventions for diet, physical activity and weight control.

Research shows that a NP gives more information and more advice on self-care management (Dierick van Daele et al, 2008). A NP led intervention module not only will look at the lifestyle changes which include weight control, diet and physical activity but also identify and treat SAs with CHD risk factors to improve the CHD management in this population. The levels of prevention and suggested strategies will be implemented as primary and secondary prevention. The primary prevention will include implementation of strategies and information on managing CHD which include diet, physical activity and

weight control. The secondary prevention will include implementation of screening tools to identify the SA population at risk of developing CHD risk factors such as diabetes, hypertension, abdominal obesity, high cholesterol and psychosocial factors and implementing or offer appropriate treatments and consultations all within the scope of a NP practice.

Primary Prevention

Primary health care is defined as providing information to people to prevent the onset of a certain disease such as health education, nutrition and exercise counseling (CRNBC, 2005). ‘NP’s are ideally prepared to offer health care to elderly, to people living with chronic disease problems.....and to client populations where other health providers are less well prepared’ (Browne & Tarlier, 2008, p.85). The first intervention goal of the educational module targets diet and cooking methods. Many SAs are unaware of dietary guidelines in the management of CHD. Research findings show that SA population consume a cholesterol-rich diet, and clarified butter (ghee) which has been identified as a risk factor in the development of CHD (Mathew & Zachariah, 2008). Knowing that the SA population likes to work in groups, a NP would coordinate a group cooking lesson with a dietitian on healthy ways to cook Indian food (such as baking or broiling instead deep frying, eating more fruits and vegetables) and to promote choice of more fruits and vegetables in daily diets. The dietitian will develop some culturally specific dietary recipes in partnership with the group. This group lesson will include topics such as calorie counting, alternative preparation methods such as preparing butter chicken with a plain yogurt instead of whipping cream, and using vegetable oil instead of “ghee” for cooking “daal” or vegetables. Diet principles will be based on the Canada

Food Guide (Health Canada, 2008). The Canada Food Guide is translated into some of the languages spoken by the SA community.

The second intervention goal of the educational intervention targets physical activity in SA. Physical activity interventions would be based on key findings from the target population and literature review. A sedentary lifestyle and a lack of leisure activity are widespread in the SA population as indicated by the literature review. The benefit of regular exercise and daily physical activity in reducing or preventing CHD is well documented in many studies. Research findings have concluded that a therapeutic strategy of weight loss through regular exercise and dietary changes can improve and even delay all elements of CHD. Insulin resistance is high in this population, and it often starts at an early age. Physical exercise has been shown to improve insulin sensitivity. Barriers to exercise in the SA group include family objections, lack of time, lack of community support, people who never “exercised” (especially women), and even the cost of exercise equipment such as running shoes. A NP’s objective is to facilitate a culturally acceptable physical activity. The NP will use the Canadian physical activity guidelines and implement or coordinate general physical activity information for this group. A NP will organize a “walking program” with a volunteer personal trainer, preferably who is SA, and the same gender, and two individuals from the SA community. A printed handout on “starting a walking program” will be distributed which will provide information on the basics of walking and cardiac health. For example, the program may include 50minutes walks twice a week from the temple and back.

A third intervention targets weight control. According to research, SA population has a higher amount of abdominal adiposity compared to non-SA population. SAs have a

higher waist to hip ratio and typically a normal BMI or a low BMI. The two major guidelines are the WHO and the IDF guidelines recommends using BMI>23 for overweight and waist circumference of >90cm and >80cm for men and women respectively and to identify SA individuals at risks for CHD and metabolic syndrome. Shay, Shobert, Seibert and Thomas (2009) asserts that A NP can easily integrate simple, a safe and effective weight control strategies by teaching effective, and easy weight control plans. They may include how to self-monitor weight, eat healthy, and exercise (Shay et al., 2009). A NP will screen SA individuals using the IDF guidelines for waist of >90cm and >80cm for men and women respectively and WHO guidelines for BMI of >23 to rule out CHD risk factors. A NP will deliver these interventions in culturally sensitive way. For example, consult family members to design a program where a woman monitoring another woman's weight or a challenge between women.

In primary care settings, A NP is well equipped to address social and cultural factors, to design and implement preventative strategies for this group. The evidence from the literature calls for cultural sensitive interventions.

The secondary prevention is defined as providing measures to detect and treat those at risk for a certain disease such as screening for diabetes, hypertension, or high cholesterol. As the literature suggests, early detection of risk factors such as hypertension, diabetes, dyslipidemia, can halt coronary events. A NP will utilize the Framingham assessment tool to predict a 10 year CHD risk score, in conjunction with the IDF and WHO guidelines, and family history, will screen individuals for CHD risk factors. The secondary interventions will also include screening for high blood pressure by setting up a blood pressure monitoring program; low high density lipoprotein, high

low density lipoprotein, high triglycerides, high fasting blood glucose, poor glomerular filtration rate, and mental health. Once these risk factors are identified, then primary interventions of weight control, modifying diet and exercise becomes more important in reducing these risk factors. A NP will refer high risk patients to cardiologist and all other patients will be followed up by the NP or a family doctor with culturally appropriate suggestions for treatment and management of their risk factors. A management by a NP of these patients will include ordering a stress test, an electrocardiogram, other diagnostics and medications within their scope of practice for further evaluation. A NP will involve the local health authority and the Heart and Stroke foundation to educate not only the SA community but also the health professionals in the community.

The tertiary prevention is defined as managing a patient with an established disease such as managing a patient's blood glucose who has diabetes or managing high cholesterol in a patient that has coronary heart disease (CRNBC, 2005). The NP will meet patients with CHD or diabetes every three months and carefully monitor their CHD or diabetes by following up with the personalized normal and abnormal laboratory results to promote continuity of care and disease management. The interventions will include ordering additional diagnostic tests, renewal or change of prescriptions, consultations and referrals. Research confirms that "NPs provide high quality, effective and economically efficient care that is highly valued by patients, families, other healthcare providers and policymaker" (Browne & Tarlier, 2008, p.84).

Obstacles, Facilitators and Challenges

During the development of CHD interventions specific to SA Canadians, barriers must be identified. The ethnic minority group's health services issues continue to pose a

challenge in Canada as SA populations are still not considered a part of mainstream health planning. Implementing guidelines that recommend ethnic specific care utilizing this evidence-based information may be perceived as inconvenient or not necessary. However, the writer believes that through employing effective venues to disseminate evidenced-based information will help establish these recommendations. It is important that our health care providers also feel very confident in their knowledge base and feel competent in implementing these ethnic sensitive recommendations in the SA population. The most effective way to present this information to the health care professionals would be in a forum with a power point presentation, a hand out and healthy Indian food. This information then can be made available at the IHA website to make it available for people who could not attend.

Outcomes for Action Plan

The writer plans to disseminate this evidenced-based information and CHD interventions first to the participants of this course and thereafter to health care workers servicing a large immigrant population and to our local Interior Health Authority. A unique opportunity exists for collecting and disseminating information on cardiovascular disease risk factors in the SA population. The writer believes that the implementation of culturally sensitive CHD interventions will result in positive health outcomes in the SA population and it will help facilitate the role of NP in this population. The writer recommends the non-South Asian NP's who are interested in managing this population, will attend a mandatory culturally sensitive course.

Evaluation of the use of Evidence-Based Practice

During this literature research, twelve articles from the list were utilized to answer the research question. The main barrier encountered during the literature search was a lack of systematic reviews or meta-analysis studies on this topic in Canada. Based on this literature review data and on provisional recommendations of the World Health Organization and the International Diabetes Federation in managing Coronary Heart Disease in the SA population intensive efforts in defining and utilizing the screening criteria should be made. Innovative methods to make prevention strategies such as vigorous exercise, dietary changes and weight control more attractive should be explored in the SA population.

Conclusion

The message is that CHD rates are the highest among the SA population in Canada, and this group is also at risk of developing insulin resistance and metabolic syndrome. Therefore, a strict management of CHD that is culturally sensitive is urgently needed. Studies indicated that current educational and treatment methods used in North America and in the United Kingdom are not meeting the health needs of the SA population. Culturally sensitive CHD interventions for SA Canadians and optimizing the use of international guidelines should be developed and implemented by a NP.

Culturally sensitive CHD interventions for the SA population have been outlined in this paper and strategies for implementation have been addressed utilizing the Leininger theory of Culture Care Diversity and Universality. Both interventions and strategies require a multidisciplinary approach in order to facilitate the change in the SA population at risk of developing CHD. It is important for the NP to take a leadership role in coordinating health care initiatives, strategies and implement interventions to improve the management and outcomes of CHD in the SA population.

A NP implemented CHD interventions will result in improved health outcomes in the SA population.

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Appendix 1

Visible minority groups, 2006 counts, for Canada, provinces and territories - 20% sample data

Table: Visible minority groups, 2006 counts, for Canada, provinces and territories - 20% sample data

Geographic name	Total - Population by visible minority groups	Total visible minority population ¹	South Asian ²	Chinese	Black	Filipino	Latin American	Southeast-Asian ³
Canada!	31,241,030	5,068,090	1,262,865	1,216,570	783,795	410,695	304,245	239,935
Newfoundland and Labrador	500,605	5,720	1,590	1,325	905	305	480	120
Prince Edward Island	134,205	1,830	130	250	640	30	215	30
Nova Scotia!	903,090	37,680	3,810	4,300	19,230	700	955	815
New Brunswick	719,650	13,345	1,960	2,450	4,455	530	720	440
Quebec!	7,435,905	654,355	72,845	79,830	188,070	24,200	89,505	50,455
Ontario!	12,028,895	2,745,205	794,170	576,980	473,765	203,220	147,135	110,045
Manitoba!	1,133,510	109,095	16,560	13,705	15,660	37,790	6,275	5,665
Saskatchewan!	953,845	33,900	5,130	9,505	5,090	3,770	2,520	2,555
Alberta!	3,256,355	454,200	103,885	120,275	47,075	51,090	27,265	28,605
British Columbia!	4,074,385	1,008,855	262,290	407,225	28,315	88,080	28,960	40,690
Yukon Territory!	30,195	1,220	195	325	125	210	95	145
Northwest Territories	41,060	2,270	210	320	375	690	85	355
Nunavut!	29,325	420	80	80	100	75	25	10

Notes: The *Employment Equity Act* defines visible minorities as 'persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color.'

