

Research Article

Hypertension screening and cardiovascular risk profiling in Vietnam

Diep N. Duong,¹ RN, PhD, Rebecca Ryan,² MPH, EdD, Dai T. Vo,³ MD and Thuan T. Tran,⁴ BSN
¹Uniformed Services University of the Health Sciences, TriService Nursing Research Program, Bethesda, Maryland, ²University of South Alabama, College of Nursing, Mobile, Alabama, ³Texas Technical University Health Science Center, Department of Internal Medicine, Odessa, Texas USA and ⁴University of Medicine and Pharmacy at Ho Chi Minh City, Faculty of Nursing and Medical Technology, Ho Chi Minh City, Vietnam

Abstract

The purpose of the present descriptive study was to determine the risks associated with hypertension in Vietnamese communities around Ho Chi Minh City, Vietnam. The 357 volunteers for this health promotion screening consisted of 125 men and 232 women, 19–85 years of age. Participants completed surveys on their cardiovascular health history, health practices and hypertension knowledge. Nearly one-third of the sample was found to have systolic blood pressure (SBP) above 139 mmHg and/or diastolic blood pressure (DBP) above 89 mmHg. Fifteen participants had either SBP over 180 mmHg or DBP over 108 mmHg, nine of these 15 participants were taking antihypertensive drugs and 76 were taking other cardiac medications. The majority (98%) cooked with salt and 75% added salt when eating. Drinking alcohol (21%) and smoking (23%) were more common in male participants. Knowledge of cardiovascular risks was very low, indicating a need for community health promotion activities with educational campaigns and further screenings.

Key words

blood pressure, cardiovascular risks, health promotion, hypertension screening, Vietnam.

INTRODUCTION

Cardiovascular disease is recognized as the leading cause of death in the USA. However, in some less developed nations, heart disease prevention is just beginning to be recognized as a priority, as infectious and communicable diseases wane. Katsumata *et al.* (1993) reported that Vietnamese immigrants to Japan continue to present with significant health problems, including parasites, anemia, liver dysfunction, tuberculosis and hypertension. Health issue differences in Vietnamese populations who immigrate and those who remain in Vietnam have not been compared. Few studies of cardiovascular diseases in American-Vietnamese populations have been performed, and have only been carried out in limited geographical areas (Munger *et al.*, 1991; Ross *et al.*, 2000; Duong *et al.*, 2001). Additionally, few studies have been carried out on the

Vietnamese diet and health risks (Van Minh *et al.*, 1997; Tong, 1991). The purpose of this health promotion activity was to describe the extent of risk of a specific population. The risk factors of personal history, health habits and risk knowledge were studied in a cluster sample of Vietnamese individuals who participated in a community screening.

BACKGROUND

Although several studies of Vietnamese immigrants to the USA and other countries have been reported, little is known about the occurrence of hypertension and cardiovascular risk factors in the indigenous population of Vietnam. In a study of Vietnamese immigrants living along the Gulf Coast of the USA, Ross *et al.* (2000) and Duong *et al.* (2001) found high blood pressure (HBP) in 44% of the sample, 58% with high cholesterol, and 65% with elevated high density lipids. Munger *et al.* (1991) reported a study examining hypertension in the Vietnamese population in the USA. They compared the blood pressure (BP) and weight of 16 360 children living in Minnesota who were

Correspondence address: Diep N. Duong, TriService Nursing Research Program, Uniformed Services University of the Health Services, 4301 Jones Bridge Road, Bethesda, Maryland 20814, USA. Email: dduong@usuh.af.mil

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Vietnamese ($n = 226$), Laotian ($n = 149$), Cambodian ($n = 219$), Hmong (1086), black ($n = 3424$) or white ($n = 11\,336$). They found higher systolic and diastolic BP rates in the South-East Asian males, compared to the white and black male children, across all weight strata in the study.

The risks of lifestyle behaviors that contribute to hypertension and cardiovascular disease have been well established. Lack of exercise, high cholesterol diets, salt intake and smoking are important contributors to these risk behaviors (Fodor *et al.*, 1999; Jukema & Simoons, 1999; Kavanagh, 2001).

Knowledge of cardiovascular risk factors theoretically leads to changes in behavior and lowering of risky behaviors. Several authors have assessed cardiovascular knowledge in Vietnamese immigrants in the USA (Rissel & Russell, 1993; Pham *et al.*, 1999; Duong *et al.*, 2001). In each of these studies, knowledge deficits among Vietnamese immigrants were profound. The greatest gaps in knowledge were related to the factors that contribute to hypertension, the identification of hypertension as life-threatening, and recognition of hypertension as a contributor or symptom of other health problems. A study conducted by Pham *et al.* (1999) described hypertension and cardiovascular disease as significant in the Vietnamese immigrant population, however, this study was limited to children in a limited geographical area of the USA.

Health risk behaviors contributing to cardiovascular disease include smoking and alcohol use, both of which are prevalent in the Vietnamese populations examined in the studies reported above. No information is available on the cardiovascular risks or health behaviors of the Vietnamese people who reside in their country of origin. The purpose of the present report was to describe the frequency of elevated BP and associated health risk behaviors for cardiovascular disease in a specific indigenous population of Vietnam.

METHODS

Public health screening is not a traditionally practised method of case finding or public health program needs assessment in Vietnam. However, new approaches for health promotion are being tested for acceptance among the population.

Screening was conducted by trained Vietnamese nursing students (data collectors), supervised by professional community nurses who visited homes and public gathering sites in their local communities around the periphery of Ho Chi Minh City. Examples of these sites included public markets, street vendor areas and casual neighborhood gatherings. This type of

screening and public education by community nurses is accepted as common practice in this area. Because air-conditioning in private homes is rare in Vietnam, people often spend time outdoors and are easily approached by others. The nursing students approached the oldest person first, at each site, to show culturally appropriate respect for the elderly.

Procedure

Each participant was briefed on the purpose of BP screening and the questions to be asked. All participants in this screening were adult volunteers, and no names were requested or recorded, although 'informed consent' as a procedure or concept does not exist with respect to health promotion activities in Vietnam. Many simply do not participate if they do not consent to the activity. Frequently, after one person in a group participated (usually the oldest) others would quickly join.

The authors feel that cultural sensitivity to the existentialist view of health and illness dictates the need to approach the Vietnamese people cautiously when asking them to participate in screening which may identify an illness. Many have little knowledge of available resources or have limited resources to deal with illness. They are more comfortable with not knowing if a problem exists as long as no symptoms are present. Shanahan and Brayshaw (1995) describe the Vietnamese as wary of answering direct questions, and those who are diagnosed with an illness receive special care and assume a dependent role in the family. She describes the Vietnamese as people who believe that those who do not readily complain of symptoms have a strong character. These characteristics make history taking a validity challenge to avoid under-reporting.

Each participant had his or her BP taken with a Welch-Allyn BP monitor. The same monitors were used throughout the project. Welch-Allyn monitors have preset calibration. All data collectors were trained on the correct procedure for BP measurement.

Participants were asked a series of questions in Vietnamese about their family cardiovascular health history, personal health, habits associated with cardiovascular risk and knowledge about hypertension. Data collectors read the questionnaire to the participants and recorded the answers given. The questionnaire was completed in less than 15 min in most cases. This interview method exhibited courtesy and cultural sensitivity and addressed the issue of participants who were not able to read (Shanahan, 1995). Questions included items such as What medications do you take?; When was the last time your BP was taken?; and knowledge

statements such as, High BP can be life-threatening (yes/no).

On completion, the participants were thanked and any misconceptions about hypertension and heart disease were discussed and explained. Those with BP in excess of 140/90 mmHg were rechecked and told that they needed a medical follow-up.

Instruments

The questionnaire was modeled after one used in previous studies of Vietnamese living along the USA Gulf Coast (Duong *et al.*, 2001). The hypertension questions were adapted from American Heart Association public education materials, testing the knowledge of the symptoms and dangers of untreated hypertension. The questions were translated into the local dialect and back-translated to insure equivalency. A panel of experts was used to assess content validity and repeated administration had demonstrated reliability.

The questionnaire consisted of two sections. The first 27 items surveyed the participant's demographic information, personal and family cardiovascular health, and personal health practices and behaviors. The second section (12 items) was designed to assess the participant's knowledge of hypertension and attendant risks. Those who were having difficulty with understanding the questions were provided with standard clarifications.

RESULTS

Of the 357 participants, 232 (65%) were female and 125 (35%) were male. Although census data is not available for the suburban-type communities in this study, the typical community comprises approximately 1000–2000 people. Subjects typically approached the nurses to have their BP taken and after noticing another person participating. Rarely were individuals approached to solicit participation. The Vietnamese show great respect for authority figures such as nurses and doctors and will usually participate when asked.

The mean age was 45 (range 19–85 years). Only 13 participants (3.4%) reported family members with one or more cardiovascular related diseases. However, reporting of family medical history may be imprecise due to the cultural practice of self-diagnosing, self-treatment and avoidance of formal medical diagnosis, treatment and care. Thus, the actual rate of hypertension and cardiovascular disease in the family history may be a much higher. The most commonly reported condition in participant's family histories was 'cerebrovascular accident'. 'Peripheral vascular disease' and

'coronary artery disease' were second and third in frequency of reporting, respectively.

More than one-third of the sample (34%) was found to have a systolic blood pressure (SBP) ≥ 140 mmHg and/or diastolic blood pressure (DBP) ≥ 90 mmHg (Fig. 1, 2). In addition, 15 participants had SBP and/or

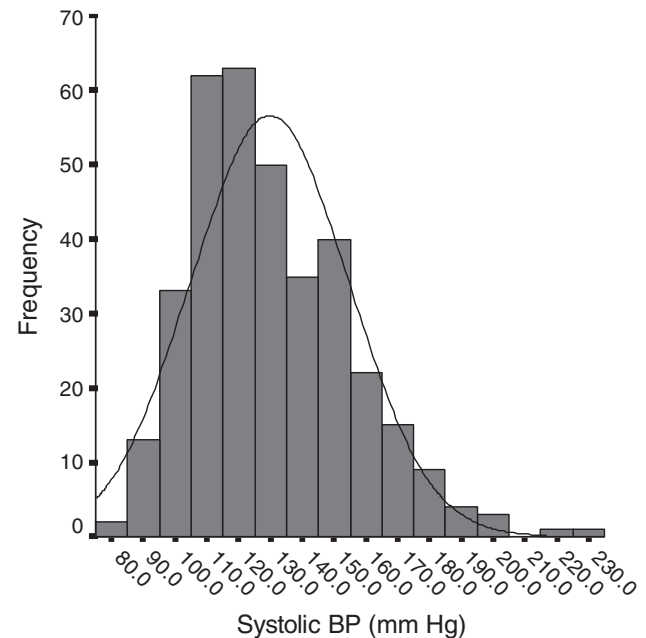


Figure 1. Distribution of systolic blood pressure (BP) readings for the present sample (SD = 24.84; mean = 129.7; N = 353).

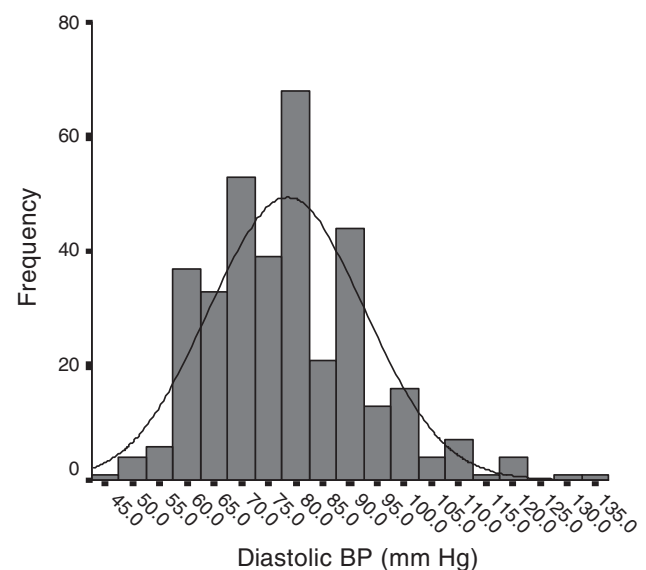


Figure 2. Distribution of diastolic blood pressure (BP) readings for the present sample (SD = 14.22; mean = 78.5; N = 353).

DBP over 180 mmHg and 108 mmHg, respectively. Of these 15 participants with extremely high readings, only a few seemed to be aware of their condition. Blood pressure readings were repeated to confirm any elevated readings.

High BP readings were much more common in older participants and in those who had less education. In the study sample, 36.6% had high BP readings. Of those with high BP readings, 74.8% reported less than four years of education and 70.7% of these were aged 50 years or older.

Only 12 participants (3.4%) reported having had their BP taken within the previous two years. Approximately a quarter of the participants reported taking antihypertensive medication (Table 1). Of the 86 participants who reported taking antihypertensive medication, all except one were found to have elevated BP readings ($\geq 140/90$ mmHg). Three of those who reported being on medication had BP readings in excess of 200/100 mmHg.

Risk factors related to diet, alcohol and exercise have often been associated with high BP. Diets high in sodium and fat were commonly reported in this sample. The majority (98%) of participants reported cooking with salt and 75% reported adding salt regularly when eating. Majority of the participants (286, 81%) also indicated that they 'always' or 'occasionally' ate canned salty foods. 'Always' adding oil to food was reported by 164 (46%) of the participants with another 157 (44%) adding oil 'occasionally'. A positive aspect of the Vietnamese diet was the 187 (53%) who chose 'always' to describe their intake of fruits and vegetables, and only 15 (4%) who chose 'never'.

Compared to female participants, male participants were much more likely to consume alcohol (55 vs 2%) and smoke (60 vs 3%). As a group, the participants were active in regular routine exercise (35.9%). Despite the availability of socialized health care, 27% participants bought additional health care insurance.

Table 1. Sex of smokers involved in the hypertensive screening and cardiovascular risk profiling study of a Vietnamese sample

Sex	Tobacco use		Total
	No	Yes	
Male	50 (40.0)	75 (60.0)	125 (100.0)
Female	223 (97.4)	6 (2.6)	229 (100.0)
Total	273 (77.1)	81 (22.9)	354 (100.0)

Values in parentheses are the percentage of participants with each group.

Table 2. Participants' response to the statement 'High blood pressure can be life threatening'

Sex	Incorrect	Correct	Total
Male	117 (94.4)	7 (5.6)	124 (100.0)
Female	209 (92.5)	17 (7.5)	226 (100.0)
Total	326 (93.1)	24 (6.9)	350 (100.0)

Values in parentheses are the percentage of participants within each group.

In spite of free health care, only 40% sought health care on an annual basis.

Excessive use of alcohol was seldom reported in this sample. Only 13 participants reported drinking alcohol daily and only eight said they drank more than three drinks on one occasion. Drinking alcohol ($n = 73$) and smoking ($n = 81$) were more common in men. Of those who smoked, over half smoked more than one pack per day and 42 (63%) had been smoking 10 years or longer.

The level of knowledge about hypertension and risks was very low. The fact that hypertension can be life-threatening was known by less than 7% ($n = 24$) of the sample (Table 2). The statement that high BP may not show symptoms was recognized as correct by less than 39% ($n = 139$). One additional question that was answered incorrectly by 92% ($n = 323$) of participants was the statement that 'There are things you can do to help prevent high blood pressure'. They did not realize corrective action is a path to improve or prevent high BP.

DISCUSSION

Large percentages of participants in the present sample displayed a high risk for future cardiovascular diseases. The most prevalent risks were elevated BP, high consumption of sodium and oil, tobacco use in males, irregular or nonexistent BP monitoring, and low levels of knowledge about hypertension and its risks. Although salt restriction has not shown a positive effect in normotensive participants, those found to have elevated BP should restrict their intake of salt in preserved foods and at the table (Fodor *et al.*, 1999). Low levels of knowledge about hypertension and related risk indicates a need for public education initiatives. Public monitoring and education about the relationship between high cholesterol and coronary heart disease is also warranted, because diet is one of several direct links to development of cardiovascular disease (Jukema & Simoons, 1999).

Widespread culturally sensitive public/neighborhood health education, public policies, care provider

counseling, and tobacco cessation/prevention programs are needed to address the prevalence of smoking in this population. Smoking is generally permitted in all public facilities in Vietnam. Culturally sensitive approaches to healthy lifestyle changes, for example, benefits of qigong exercises in reducing hypertension, should be investigated (Sancier, 1999). Qigong is a traditional self-care practice involving movement and medication. Traditional medical strategies for controlling hypertension have shown only a 50% success rate (Weber, 1998; Pickering, 2002). Innovative approaches to controlling hypertension need to be investigated.

The present study was limited to a non-random cluster sample of convenience. Further limitations include were that only volunteers were involved and few advanced elderly participants. Larger stratified samples may yield different results.

Further studies of other Vietnamese populations and evaluation studies of culturally sensitive health intervention programs are needed to determine the best areas for expenditure of Vietnam's limited health resources. Vietnam is progressing rapidly in terms of a very high level of literacy (97%), new business and new industry initiatives. The time is now for inclusion of health promotion in government programs to increase the health status of the Vietnamese people, and to reduce the impact of cardiovascular disease on the population's performance/output, quality of life, and consequently upon the national economy.

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