**From the Division of Social Medicine and
the Division of International Health (IHCAR)
Department of Public Health Sciences
Karolinska Institutet, Stockholm, Sweden**

ASSESSING HEALTH PROBLEMS
**Self-reported illness, mental distress,
and alcohol problems in a rural district in Vietnam**

Kim Bao Giang

Karolinska
Institutet

Stockholm, 2006

ABSTRACT

Background: Data on disease burden in the community is important for health planning and policy making. Several developing countries in epidemiological transition suffer the double burden of infectious diseases and increasing rates of non communicable diseases. While the health information system in these countries is still weak, population surveys are rarely conducted.

Aims: To assess the occurrence of self-reported illness, mental distress, alcohol problems in different groups in rural Vietnam. Specifically, the aims were to (i) evaluate instruments for monitoring mental health and alcohol problems; (ii) describe and analyze self-reported illness; (iii) assess level of mental distress and alcohol problems; (iv) describe use of health services among people with mental distress, and people with illness reported.

Methods: This work was conducted in a rural district within the framework of a longitudinal demographic surveillance system. Through household interviews, data were collected from 11,089 households comprising 48,919 individuals, on self-reported illness and use of health services during four weeks prior to the interview *(paper I)*. A Vietnamese version of the SRQ-20 was tested and evaluated in 52 persons in a district hospital sample and 485 persons from the general population *(paper II)*. The instrument was used to estimate the prevalence of mental distress in a community sample of 3,425 persons *(paper V)*. The same procedures were applied to evaluate a Vietnamese version of AUDIT in a sample of 485 persons *(paper III)*, then to estimate alcohol problems in a sample of 3,423 persons *(paper IV)*.

Main findings: The prevalence of self-reported illness was 48%. The most common reported symptoms were cough, fever, and headache (19-22%). Occurrence of illness was significantly lower in groups with higher education, especially among men. Self-treatment was very common (68-70%). Those who reported illness used more private health services than public health services. Use of district hospitals was significantly higher among employed people *(paper I)*. The selected optimal cutoff points of SRQ-20 in hospital and community settings were 5/6 and 6/7, respectively *(paper II)*. The prevalence of mental distress was 5.4% (7% in women and 4% in men). Men who were separated/divorced/widowed or who had unstable employment had higher prevalence of mental distress. 58% of those with mental distress had no treatment and only 5% of them sought health care at the health facilities where mental health services are available. The same pattern of use of health services as in the first study was found among people with mental distress who had used health services *(paper V)*. The cut-off point 7/8 of AUDIT was found optimal (63-100% sensitivity and 76-87% specificity) *(paper III)*. The prevalence of alcohol problems was 25.5% in men and 0.7% women. Separated/divorced/widowed and high educated women had significantly higher prevalence of alcohol problems *(paper IV)*.

Conclusions: The surveillance system is a valuable tool for assessment of health problems and use of health services, which is important for health planning and prevention. The SRQ-20 and the AUDIT were confirmed to be valid in Vietnam. High level of alcohol problems among men underlines the need for public health intervention. Low utilization of public health services and treatment gap in mental health indicates the importance of monitoring quality of health services as well as reporting health information from both private and public health services.

LIST OF PUBLICATIONS

This thesis is based on the following papers:

I. Kim Bao Giang and Peter Allebeck. Self- reported illness and use of health services in a rural district in Vietnam-findings from an epidemiological field laboratory. *Scandinavian Journal of Public Health,2003*: **Suppl.62**: 52-58.

II. Kim Bao Giang, Peter Allebeck, Gunnar Kullgren, Nguyen Van Tuan. The Vietnamese version of Self-Reporting Questionnaire-20 (SRQ-20) in detecting mental disorders in Vietnam: a validation study. *International Journal of Social Psychiatry, 2006*:**52(2):**175-184.

III. Kim Bao Giang, Fredrik Spak, Truong Viet Dzung and Peter Allebeck. The use of AUDIT to assess level of alcohol problems in rural Vietnam. *Alcohol & Alcoholism, 2005*: **40(6)**, 578–583.

IV. Kim Bao Giang, Peter Allebeck, Fredrik Spak, Hoang Van Minh, Truong Viet Dzung. Alcohol use and alcohol-related problems in rural Vietnam: an epidemiological survey using AUDIT. (*Accepted for publication by Substance Abuse and Misuse*)

V. Kim Bao Giang, Truong Viet Dzung, Gunnar Kullgren and Peter Allebeck. Prevalence of mental distress and use of health services in a rural district in Vietnam. (*Manuscript)*

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AUC	Area under the ROC curve
AUDIT	Alcohol Use Disorders Identification Test
CHS	Community health station
DSM	The Diagnostic and Statistical Manuals of Mental Disorders
DSS	Demographic Surveillance System
FilaBavi	The Epidemiological Field Laboratory of Bavi
ICD	The International Classification of Diseases and Related Health Problems
MoH	Ministry of Health
NCD	Non-Communicable Diseases
NIMH	The National Institute of Mental Health
NPV	Negative Predictive Value
PPV	Positive Predictive Value
ROC	Receiver Operating Characteristics
SAREC	Swedish Agency for Research Co-operation with Developing Countries
Sida	Swedish International Development Agency
SRQ	Self-Reporting Questionnaire
VLSS	Vietnam Living Standard Survey
VND	Vietnamese Currency (VND 15,900 = USD 1)
VNHS	Vietnam National Health Survey
WHO	World Health Organization

1. BACKGROUND

1.1. Health problems in countries in transition

As the consequences of demographic and socioeconomic transition, several developing countries are now in the epidemiological transition. The patterns of health and disease and the interaction between health and sociodemographic conditions are changed. The epidemiological transition results in a major shift in causes of death and disability from infectious diseases to noncommunicable diseases (NCD) (Beaglehole and Bonita, 1997; Omran, 2001; WHO, 1999).

During transition, several developing countries have to face with the double burden of diseases. The double burden is characterizing by the increase of NCD (such as cardiovascular diseases, cancer and mental disorders) and the persistence of infectious diseases (such as respiratory infections, tuberculosis and HIV/AIDS) (WHO, 1999). At the same time, personal behaviours are often changing in ways that increase the chances of developing a chronic disease. It is reported that underweight, unsafe sex, high blood pressures, smoking, and alcohol are among the leading risk factors of the world disease burden in 2000, and the developing and developed countries are alike (Commission on Behavioral and Social Sciences and Education, 1993; Omran, 2001).

The large burden of neuropsychiatric conditions is one of the most surprising results of disease burden measurement, which incorporates deaths as well as time lived with disability (**figure 1**). The Global Burden of Diseases study has predicted that neuropsychiatric conditions in developing countries would be increased from 9% of total DALYs (Disability Adjusted Life Years) in the 1990 to 14% in the 2020 (Murray and Lopez, 1996).

About 450 million people worldwide are estimated to be suffering from neuropsychiatric conditions. These conditions included unipolar depressive disorders, bipolar affective disorder, schizophrenia, epilepsy, alcohol and selected drug use disorders, Alzheimer's and other dementias, post traumatic stress disorder, obsessive and compulsive disorder, panic disorder, and primary insomnia (WHO, 2001c). The lifetime prevalence of mental or behavioral disorders in both developed and developing countries has been estimated to 25% (Almeida-Filho et al., 1997; Regier et al., 1988; Wells et al., 1989).

According to a WHO survey in 14 countries, the prevalence of mental disorders was lowest in Shanghai (4.3%), and highest in the United States (26.4%), while the prevalence of mental disorders in other countries varied between 9.1% and 16.9% (Demyttenaere et al., 2004).

Source: World Health Report, 1999
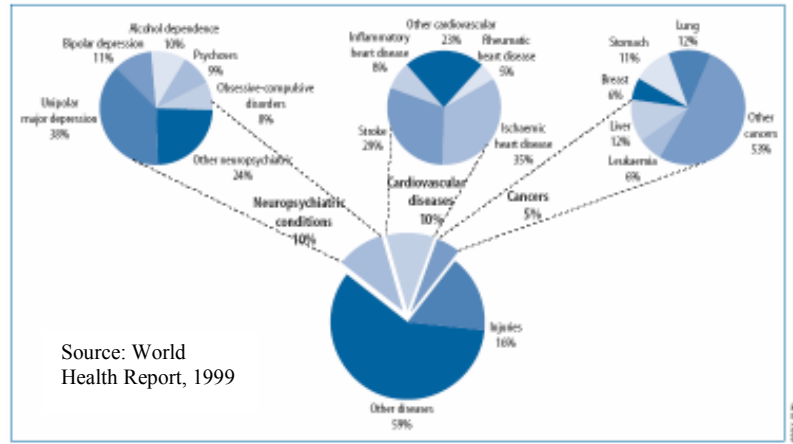
Figure 1:The emerging challenges - DALYs attributable to noncommunicable diseases in low and middle income countries, estimates for 1998.

Mental disorders are not the exclusive preserve of any special group; they are truly universal. Mental disorders are found in people of all regions, all countries and all societies (WHO, 2001c). Nevertheless, epidemiological studies have indicated that mental health problems are more common among people in low socioeconomic status (Patel and Kleinman, 2003).

Alcohol is the one of the leading contributors to the burden of mental health problems. In developing countries, alcohol dependence is estimated to account for 10% of the total burden of neuropsychiatric conditions. Globally, the burden of alcohol use and alcohol problems has been widely recognized. Alcohol is known to increase the risk for many diseases and has a causal relationship with more than 60 different medical conditions (Rehm et al., 2003; Room et al., 2005). According to the Global Burden of Disease Study, alcohol causes 3.2% of deaths and 4.0% of DALYs, worldwide (WHO, 2002). In some developing countries in America and Asia Pacific, the proportion of total

disease burden that is attributed to alcohol was estimated at 6.2% (Room et al., 2005).
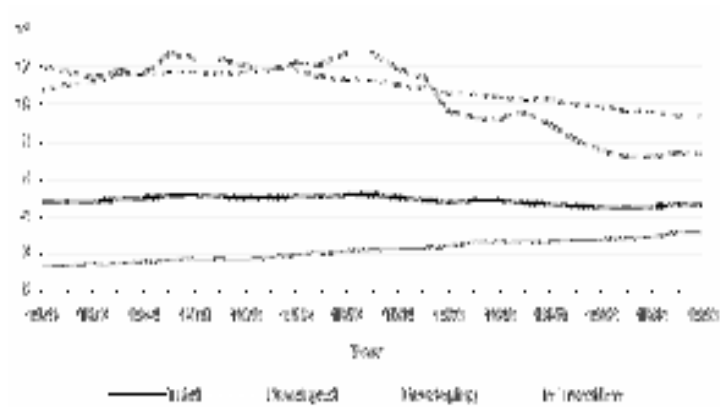
Figure 2: Recorded Adult (15+) Per Capita Consumption 1970-1996
by Economic Region (in litres of pure alcohol)- Source: Global Status Report on Alcohol, WHO 1999.

According to a publication by the WHO, while alcohol consumption is going down in developed countries, it is rising in developing countries, and it is likely to escalate alcohol-related problems (**figure 2**) (WHO, 2001a).

1.2. Need for public health data

The major goals in public health are to promote and improve the health of the population. In order to formulate health strategies and health policies according to the needs of the population, knowledge about the health situation of the population is necessary (Allebeck, 1997; Allecbeck, 1998; Basch, 1990; Beaglehole and Bonita, 1997).

In developed countries, data on health is regularly obtained from health registers and population surveys. These are often presented in public health reports, and several countries have developed a solid tradition for reporting not only mortality and morbidity, but also self reported health, life style and other risk factors, as well as socio-economic conditions and other structural factors (Allebeck, 1997). In contrast to developed countries, developing countries have seriously lacked essential data on health for making health plans and setting

health policy. Health information system in the developing world has been not adequately organised to provide needed information, while population surveys are rare (Basch, 1990; WHO, 2001b).

More than 27% of all countries do not have any system for collecting and reporting mental health data. Those that have such a system often lack sufficiently detailed information to allow for the evaluation of policy, services and treatment effectiveness. Apart from that, in many developing countries, there is a lack of scientific research on mental health epidemiology, services, treatment, prevention and promotion and policy. "Information for better decisions" has been a strategy in the efforts recommended by WHO in order to reduce the burden and problems related to mental health (WHO, 2001c).

1.3. Methods for assessing health problems in the community

According to the WHO's definition, health is defined in very broad term. Health is not seen to be simply the absence of disease but a state of well-being at all level of human existence (Beaglehole and Bonita, 1997). Thus, to be in line with the WHO definition, measures of health status must address the underlying issues of physical, psychological and social aspects of health.

Traditionally, health status is often described by life expectancy, mortality and morbidity. However, these classical measures are inadequate for assessing people's health since several illnesses or limited function can not be recognized as a specific disease. The last few decades saw a significant expansion in the ways population health status can be characterized, particularly by supplementing mortality data with emerging measures of clinical signs and symptoms, health related quality of life and functional disabilities (Commission on Behavioral and Social Sciences and Education, 2001).

Health problem refers to a situation or condition for people and their environment measured in death, disease, disability, or risk that is believed to persist in the future and is considered undesirable (MAPP, 2006). Thus, it is also important to assess the risk factors related to health such as smoking, drug use and alcohol abuse among others. The traditional approach employing medical examinations to assess health problems is much more costly and is not always

4

feasible in population surveys. During the past decades, several instruments have been developed to measure different aspects of health and to identify health problems in community and primary care settings (McDowell and Newell, 1996).

Assessing general health

A number of measures have been developed and are used in several countries, especially developed countries. These instruments are often used to measure general state of health status in terms of physical, social and psychological functioning and general health perception. Among them, the commonly used instruments are the Nottingham Health Profile (NHP), the Sickness Impact Profile (SIP), the Short Form Health Survey-36 items (SF-36) and the EuroQol Instrument, etc. In general, these have been thoroughly tested for validity and reliability and often are generally of good quality (Garcia and McCarthy, 2000; McDowell and Newell, 1996).

Assessing mental health problems

Two major classification systems of diseases that have been widely used for classifying mental disorders are the Diagnostic and Statistical Manuals of Mental Disorders (DSM) of the American Psychiatric Association (AIIPsych online), and the International Classification of Diseases and Health Problems (ICD) of the WHO (Janca et al., 1996).

During the past decades, there has been an increase in the use of standardized diagnostic instruments for psychiatric disorders based on these two classification systems. Structured interview schedules, uniform definitions of symptoms and signs, and standard diagnostic criteria have now made it possible to achieve a high degree of reliability and validity in the diagnosis of mental disorders. Mental disorders can now be diagnosed as reliably and accurately as most of the common physical disorders.   Among them, the DSM, the ICD-10 Symptoms Checklist for Mental Disorders, the Schedule for Clinical Assessment in Neuropsychiatry (SCAN), etc. were designed to be used by clinicians to assess mental disorders in adults.   Besides that, some instruments were developed for lay administration in epidemiological and public health studies

without requirement of clinician's judgment to rate respondent's answers, such as the Composite International Diagnostic Interview (CIDI), the Clinical Interview Schedule- Revised (CIS-R), etc. (WHO, 1997). The CIDI and the CIS-R are two mainly lay administered structured interviews used in mental health research. The CIDI is highly valid for assessment of common disorders while the CIS-R is moderately valid (Jordanova et al., 2004).

Apart from diagnostic structured instruments, several instruments have been developed to investigate the general state of mental health, such as the Self Reporting Questionnaire (SRQ), the General Health Questionnaire (GHQ), the Mental Health Inventory, the Primary Care Evaluation of Mental Disorders (PRIME-MD). These instruments can be self-administered or performed by interviewers (Abdullah S. Al-subaie, 1998; Garcia and McCarthy, 2000; Ghubash et al., 2001; Sartorius and Janca, 1996; WHO, 1994). Among them, the SRQ and the GHQ are very commonly used in epidemiological studies. The SRQ has been found as adaptable and valid for use in many developing countries (Araya et al., 1992; Sartorius and Janca, 1996; WHO, 1994).

It is important to distinguish screening for mental health problems in the general population from diagnosis of mental disorders. From the public health perspectives, general mental distress in the community is more interesting than the occurrence of specific psychiatric disorders. These require other methods of investigation and intervention, mainly in the health services.

Assessing alcohol problems

Alcohol problems, a concept widely used in the literatures, include at risk drinking, alcohol abuse, harmful use and alcohol dependence (Hasin, 2003; Room et al., 1996). A number of diagnostic instruments have been developed and have been used to identify alcohol problems based on criteria of the DSM and the ICD. Maisto and McKay have reported 17 diagnostic measures of alcohol problems, such as the CIDI, the Alcohol Dependence Scale (ADS), the Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS), the Psychiatric Research Interview for Substance and Mental Disorders (PRIMS or SCID-A/D), the SCAN, and others.

Besides that, several screening instruments have been developed for use in primary care or population survey, such as the Alcohol Use Disorders Identification Test (AUDIT), CAGE, Michigan Alcoholism Screening Test (MAST), the Self-Administered Alcoholism Screening test (SAAST), TWEAK (Tolerance, Worry, Eye-opener, Amnesia, Kutdown), etc. (Babor et al., 2001; NIAAA, 1995). A review done by Fiellin et al. indicated that the AUDIT and CAGE consistently performed better than other methods, while the AUDIT is the most effective methods in identifying subjects with at risk, hazardous, or harmful drinking (Bradley et al., 1998; Fiellin et al., 2000). The AUDIT has been recommended by the WHO for use in primary care to detect and decide brief intervention for persons with alcohol problems (Babor et al., 2001; Babor and John, 2001).

Many assessments have been conducted in different countries to evaluate validity and reliability of instruments. However, the use of these is particularly limited in developing countries. There is a need to adapt these and develop capacity for using these at outpatient and community levels in developing countries, and in a next step to implement the use of these for secondary prevention in the health services.

1.4. Vietnam

General description

Vietnam, officially the Socialist Republic of Vietnam, is located on the eastern coast of the Indochina's Peninsula. Laos and Cambodia border Vietnam in the west, China from the north and the South China Sea in the Southern region. The land area of the country is about 331,000 square kilometers with the see coast stretches over three thousand kilometers along the East Coast of the Indochina's Peninsula. Vietnam is made up of equatorial lowlands, high, temperate plateaus and cooler mountainous areas. Vietnam lies in the intertropical zone and the climate varies by geographic location. North Vietnam has two basic seasons: a cold and humid winter from November to April, and a warm and wet summer for the remainder of the year. The northern provinces of Central Vietnam share the climate of the North, while the southern provinces share the tropical weather of the South. South Vietnam is generally warm, the

hottest months being March through May. This is also the dry season in the South, followed by the April-October monsoon season.

The population of Vietnam in 2004 is about 82 millions, 51.5% of which are women. Seventy four percents of the population live in rural areas. There are 54 ethnic groups and the majority is Kinh group (87%). In 2004, the Gross Domestic Product (GDP) per capita was estimated to be 553 USD (UNDP Vietnam, 2005).

Health care system

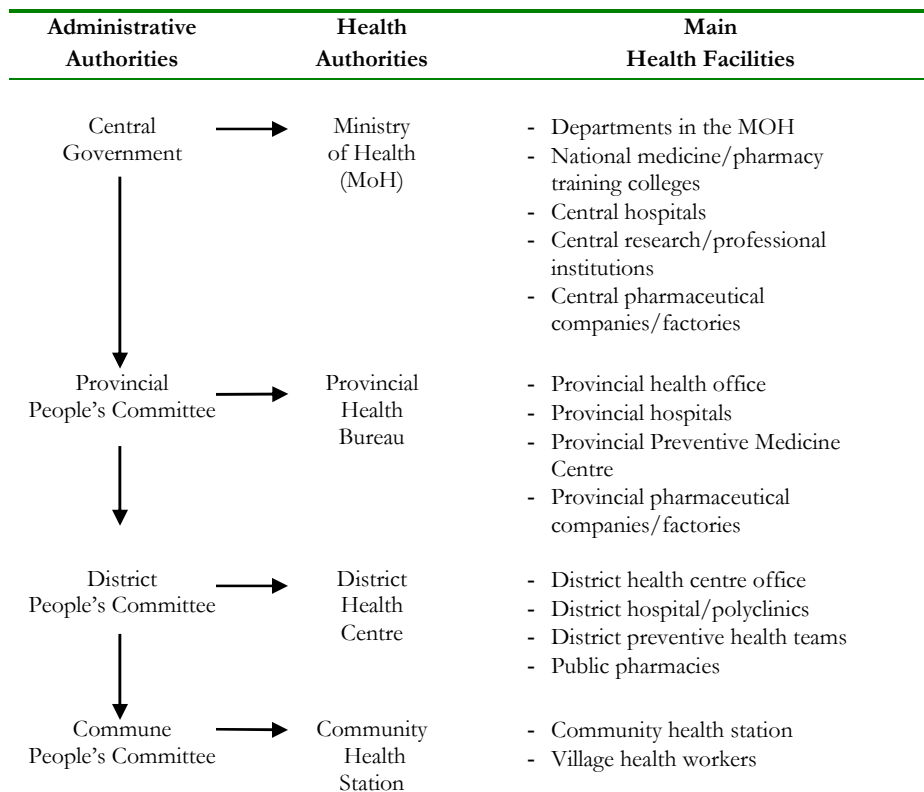| Administrative Authorities	Health Authorities	Main Health Facilities
Central Government	Ministry of Health (MoH)	- Departments in the MOH - National medicine/pharmacy training colleges - Central hospitals - Central research/professional institutions - Central pharmaceutical companies/factories
Provincial People's Committee	Provincial Health Bureau	- Provincial health office - Provincial hospitals - Provincial Preventive Medicine Centre - Provincial pharmaceutical companies/factories
District People's Committee	District Health Centre	- District health centre office - District hospital/polyclinics - District preventive health teams - Public pharmacies
Commune People's Committee	Community Health Station	- Community health station - Village health workers

Figure 3: The Vietnamese public health care system.

In 1986, the government initiated a wide-ranging economic reform program, known as *doi moi*. The program put Vietnam firmly on the path of transforming itself from a planned economy to a market economy. As a positive impact of

the economic reform, the country's economy has been steadily improved, the annual GDP growth rate was 6.8% in 2000, 7.2% in 2003 and 7.5% in 2004 (World Bank, 2006). At the same time, there are many changes in the social contexts, which might affect the health of the population both positively and negatively.

Since the unification of the country in 1975, the health sector in Vietnam has been increasingly strengthened and developed to serve the whole population. Before *doimoi* in 1986, health care services were provided free of charge at all levels of the health system, from the central to the grassroots levels.

The *doi moi* reforms contributed to several changes in the health sector. The most important health sector reforms were the introduction of user fees for health services at higher level public health facilities, legalization of private medical practice, liberalization of the pharmaceutical industry, and deregulation of the retail trade in drugs and medicines (Ministry of Health of Vietnam, 2002; World Bank, 2001).

The health system in Vietnam now is a mixed public-private system, in which the public system plays as a key role in preventive and curative care for the whole population nationwide. The public health care system consists of four levels: central, provincial, district and commune levels. The central and the provincial levels are considered to be the specialised health professional zone, while district and commune levels belong to the basic health care zone.

The Ministry of Health (MoH) is the main national authority in the health sector and has the responsibility to formulate and execute health policies and health programs, to set technical norms and criteria and to monitor preventive and curative care activities within the country. There are 17 central hospitals that mainly provide curative care at a higher technical level, conduct technical supports and supervision to the lower levels and perform professional training and research.

At the provincial level, there are 64 Provincial Health Bureaux, each of which serves a population of about 1.2 millions. It is fully under the administration of the Provincial People Committee, but receives technical guidance and

supervision from the MoH. In each province, there is a general hospital of around 500 inpatient beds, some specialised hospitals, a Preventive Medicine Center, a Centre for Maternal and Child Health Care and Family Planning and some Provincial Pharmaceutical Companies.

In each district, the public health services consist of a district hospital with around 100 inpatient beds, some intercommunal policlinics, some public pharmacies and about 15-35 community health stations (CHSs). The district hospital and the policlinics are mainly responsible for curative care, while the CHSs are responsible for primary health care that includes essential curative care and preventive care. The district preventive health team and the Maternal and Child Health and Family Planning team are responsible for supporting and supervising health care activities at the commune level. Each CHS has 3-5 health staff and provides health care for a population of 2,000-12,000 inhabitants. Village Health Workers, who are recruited locally and trained on a number of basic medical topics, are supposed to mobilize and assist with immunization, antenatal care, and family planning programs, advise about clean water and sanitation, and offer simple treatments to people in remote villages.

The private sector has steadily developed since 1989. The private medical facilities account for almost haft of total number of private medical and pharmaceutical facilities. In 1998, there were 19,836 private health facilities in the whole country. They are mainly clinics run by general practitioners or specialised clinics and are only active in curative outpatient care. There are few private hospitals providing inpatient care and they are all located in the big cities. It is important to note that there are a number of un-registered private practitioners, especially in the rural areas (Ministry of Health of Vietnam, 2002).

The governmental health budget in 2003 was 7,751 billions VND and accounted for 1.3% of GDP and the corresponding health budget per capita was VND 95,800 ($6.4)(Ministry of Health of Vietnam, 2006). The total health expenditure was about 4% of GDP. Government expenditure accounts for only 30%, the majority being allocated to treatment, which increased from 71% in 1991 to 85% in 2000 (WHO, 2006).

Investigations by the MoH have shown that self-treatment is common in the community, and the use of public health care services is low, while the use of private health care facilities is increasing (Ministry of Health and General Statistic Office, 2003; Ministry of Health of Vietnam, 2002).

Health information system

Like in many developing countries, the health information system in Vietnam is still weak. Health information mainly comes from different levels of public health services. There has been no regular system to collect and report data on health and health care activities at private health services. Although there are some population surveys, data on health problems are mainly based on hospital statistics, which are not adequate for the development of health policy and planning health services.

Mental health services in Vietnam

Mental health services in Vietnam are weak compared to other countries in the region. The specialized mental health services in Vietnam are only available at central and provincial levels of the health care system. Some provinces still lack psychiatric care facilities, as well as mental health professionals. Mental health services are now absent at district and commune levels.

In the whole country, there are two central psychiatric hospitals (one in the North and one in the South), and one National Institute of Mental Health. In all of 64 provinces, there are 30 psychiatric hospitals and 21 departments of psychiatry that belong to general provincial hospitals, with a total number of 5,000 inpatient beds. There are totally 1,500 mental health professionals having university level or higher and 2,200 psychiatric nurses. Social health workers and psychologists working for mental health have not been employed in the health system. Since 1998, a community-based mental health care program has been implemented in several provinces. However, this has just focused on treatment and management of schizophrenia patients (Nghi, 2004). As estimated from an epidemiological survey, only one-tenth of people with schizophrenia are treated (Ministry of Health of Vietnam, 2002).

11

Health problems: double burden of diseases

Despite being one of the poorest countries in Asia, Vietnam's health indicators are much better than in other countries with the same level of income per capita.

Table 1: Trends in main health indicators for Vietnam

Indicators	1980	1990	2003
Total population (million)	53	66	81
Infant mortality rate (per 1,000 live births)	57	40	21
Under five mortality rate (per 1,000 live births)	105	81	33
Maternal mortality ratio (per 100,000 live births)	-	200	94
Birth weight < 2500g (%)	25	15	7
Life expectancy (years)	63	67	71

Source: Ministry of Health of Vietnam, 2003.

This is the effect of investing considerable resources in establishing a vast network of primary health facilities throughout the country and in developing a number of specific health programs to deal with priority health problems, such as malaria, diarrheal diseases, and communicable diseases. Apart from that, the high rate of adult literacy also has been one contributor to the achievement of the generally impressive health indicators in the country.

The changes in economic and social determinants of health are probably generating an extremely dynamic epidemiologic and health transition. The transition period is characterized by the widening gap between rich and poor, degradation of environment, population ageing and the increase of unhealthy life styles. During the last 20 years, the disease pattern in Vietnam has considerably changed.

Despite the decline in their incidence, communicable diseases continue to be major public health problems in the country. Acute respiratory infections (ARI), diarrhoea and gastroenteritis with presumed infectious origin, and parasitic diseases were among leading causes of morbidity in 2003, while new or re-emerging diseases, such as tuberculosis (TB), HIV/AIDS, dengue fever and Japanese encephalitis, are increasing. On average, there are more than 68,500 new TB patients every year. In 2003, 4.3% of TB patients were HIV-positive (WHO in the Western Pacific, 2006). By the end of May 2005, there had been

95,871 cases of HIV infection detected, among whom 15,618 cases had progressed to AIDS, and 8,975 people had died (Ministry of Health of Vietnam, 2005). Severe acute respiratory syndrome (SARS) was detected in its early stages in Vietnam in 2003 with five deaths out of 63 reported cases. The avian influenza H5N1 virus causing poultry outbreaks led to the death of 29 out of 37 reported cases of infected persons by February 2005 (WHO, 2006).

While Vietnam continues to struggle with infectious diseases, nutritional deprivation, and reproductive health risks among children and women, the chronic and degenerative diseases of diet and lifestyle are clearly increasing (Chen and Hiebert, 1994).

Hospital statistics show that NCD admissions increased from 39 % in 1986 to 61 % in 2003 and NCD deaths rose from 42 % in 1986 to 59 % in 2003 (Ministry of Health of Vietnam, 2006). **Figure 4 and 5** present mortality and morbidity pattern according to hospital statistics during the period between 1976 and 2003.
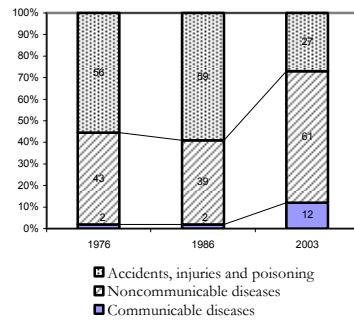

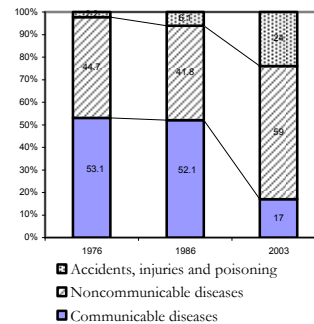*Figure 4 : Morbidity pattern (%) according to hospital statistics, 1976-2003.*

Figure 5: Mortality pattern (%) according to hospital statistics, 1976-2003.

Mental health problems

The magnitude of mental health problems in Vietnam has not been well known. According to an estimation by the National Institute of Mental Health the prevalence of mental disorders is around 10-15% of the population, the prevalence of mental disorders is higher in urban areas (Nghi, 2004). It has been

suggested that the number of people suffering from mental health problems has increased in the past years as reverse effect of the economic development, that creates a lot of work pressures on the population (Ministry of Health of Vietnam, 2002).

Alcohol problems

The National Health Survey (NHS) in 2001-2002 indicated that nearly one-fifth of population above age 15 reported being drunk weekly. Forty six percents of men and 1.9% of women used alcohol weekly. Alcohol use strongly associated with age (**figure 6**). It was highest in the age group 35-44 years (Ministry of Health and General Statistic Office, 2003).
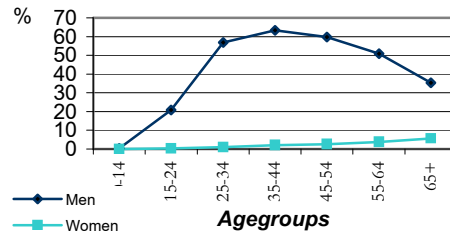

Figure 6: Alcohol use among men and women in different agegroups.

This survey, however, did not attempt to provide any figure about alcohol related problems. The Vietnam Health Report published by the MoH (2002) has indicated that alcohol is the second main reason for traffic accidents and that drunk driving caused 23% of all accidents. According to hospital statistics there has been a considerable increase in alcohol-related diseases during the past decades, particularly alcohol-related psychoses. The proportion of inpatients who had alcohol related psychoses increased from 0.31% in 1986 up to 9.6% in 1995 (Thiem, 2004). The epidemiology of alcohol problems in the population has not been well described in community based studies (Ministry of Health and General Statistic Office, 2003; Ministry of Health of Vietnam, 2002).

2. AIMS

2.1. General aim

The aim of this thesis was to assess the occurrence of self-reported illness, mental distress, alcohol problems in different groups of the population in rural Vietnam.

2.2. Specific aims

- To evaluate instruments for monitoring mental health and alcohol problems in rural Vietnam. (paper II, III)
- To examine mental distress and alcohol problems in a rural district in Vietnam. (paper IV, V)
- To analyze self-reported illness in a rural district in Vietnam. (paper I)
- To describe use of health services among people with illness reported, and people with mental distress. (paper I, V)
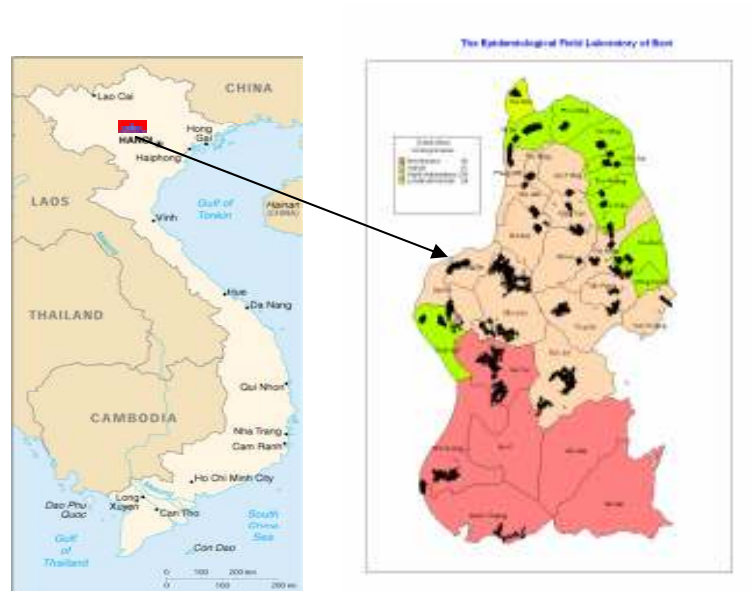
3. METHODS

3.1. Setting

Figure 7: Map of Vietnam, Bavi district and FilaBavi.

The studies were conducted within the framework of a longitudinal demographic surveillance system (DSS), called the Epidemiological Field Laboratory of Bavi (Fila Bavi). The FilaBavi is a multipurpose epidemiological field study. The aim is to provide demographic, health and health care information for health planning and also to serve as a background for specific epidemiological studies (Chuc and Diwan, 2003).

FilaBavi is located in Bavi district. Bavi is one of the rural areas of northern Vietnam, located in Hatay province, 60 km west of Hanoi - the capital of Vietnam. The district covers 410 km² and has low land, high land and mountainous areas and ranges in altitude from 20 to 1,297 meters above the sea level. The population is approximately 240,000 people. Two thirds of population are farmers, the remaining one third are government staffs, workers, small traders, etc. The main economic activities of the district are farming,

forestry, and livestock breeding. During the last few years, there has been a tendency that people go to the city or other provinces to do temporary works during leisure period after harvest time. The major ethnic group is Kinh, which is the biggest group in Vietnam. The average household size is about 5 persons and there are often 3 generations living together in each household. The illiteracy of people over 15 years is 0.4%. The crude mortality rate is estimated at 5.1 per 1000 person-years for both sexes (4.7% for women and 5.6% for men) (Byass, 2003).

FilaBavi covers 29 communes in total of 32 communes of the district. The health care system in the district has been organized according to the general pattern in rural Vietnam.

Bavi life: Working in the field

The public health care services consist of a district hospital with 150 inpatient beds, 3 policlinics and 32 communal health stations (CHSs). Apart from a drug outlet that is available in each CHS, there are few private pharmacies located in this district. There are about 145 private health care providers. Most of them are assistant doctors, traditional healers and nurses.

The FilaBavi consists of a sample of around 11,500 households with totally around 50,000 individuals. They were identified by random cluster sampling from the general population of Bavi district. The sample size was initially based on requirements to assess the changes in infant mortality rate of 15 per 1000 with 80% probability. This requires a 20% sample of the total district population. The sampling unit was the village. Among total of 352 clusters, 69 clusters were randomly selected. In this surveillance system, information on demographic events, health related conditions and use of health services is collected every 3-month. There are 42 surveyors and six field supervisors permanently working with the data collection.

The baseline survey was started in January 1999 to collect background information of 11,457 households comprising totally 49,893 persons. After the baseline survey, all households in these 69 clusters were visited every three months to collect information as described above. Every two years, a re-census is carried out to update background information of each household. In addition to the general survey, specific questionnaires are added in different sub-studies. By the end of March 2006, 27 follow-up rounds and 3 re-censuses have been completed. This thesis used the information from the baseline survey, the third follow-up, the first and the second re-census.

3.2. Study design

Five cross-sectional studies were integrated in the general surveys conducted within FilaBavi.
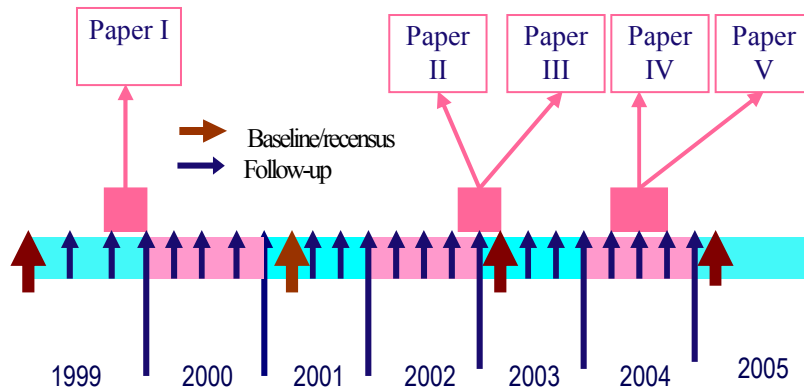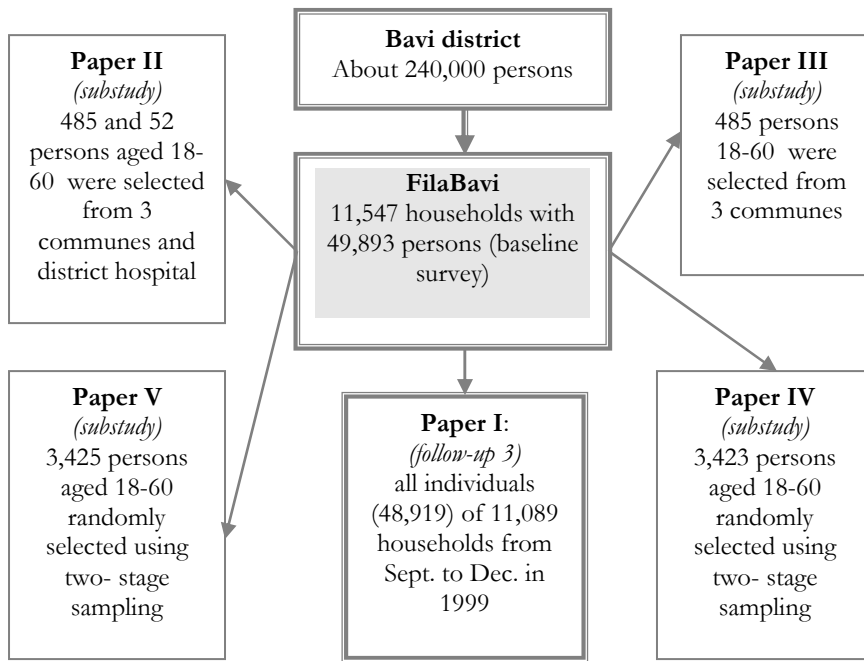

Figure 8: Timeframe of studies included in the thesis conducted within FilaBavi.

3.3. Study subjects, sample size and sampling

Study 1: All persons living in the FilaBavi from September to December in 1999 were included.

Study 2: 52 persons who sought health care at the district hospital during 2 days and 485 persons from 3 communes were included. To obtain the community sample, 3 communes representative for highland, mountain and lowland areas were selected from 32 communes, then 485 persons were selected applying proportional population to size sampling techniques.

18

*The **figure 9** illustrates the study subjects and sampling.*

Paper II *(substudy)* 485 and 52 persons aged 18-60 were selected from 3 communes and district hospital	Bavi district About 240,000 persons	Paper III *(substudy)* 485 persons 18-60 were selected from 3 communes
	FilaBavi 11,547 households with 49,893 persons (baseline survey)	
Paper V *(substudy)* 3,425 persons aged 18-60 randomly selected using two- stage sampling	Paper I: *(follow-up 3)* all individuals (48,919) of 11,089 households from Sept. to Dec. in 1999	Paper IV *(substudy)* 3,423 persons aged 18-60 randomly selected using two- stage sampling

Study 3: 485 persons 18-60 years old were included by applying the same sampling procedures for the community sample of the study 2.

Study 4: The sampling frame of FilaBavi was used. In the first stage, 69 original clusters were stratified according to geographical region, 31 clusters (14 from highland, 9 from lowland, 8 from mountainous areas) were then randomly selected according to the population size in each region. In the second stage, in each selected cluster, we randomly selected 115 persons 18-60 years old from the identity number list of the population. The sample finally comprised 3,423 persons since some clusters did not have 115 persons in these age groups and 16 persons were absent during the data collection.

Study 5: The sample was 3,425 persons 18-60 in FilaBavi. The same sampling procedures as in the fourth study were applied.

3.4. Development of instruments

3.4.1. The structured questionnaire used in study I

This questionnaire was developed by the FilaBavi technical committee, which comprises Swedish and Vietnamese epidemiologists, medical doctors and public health experts. This has been used in every three - month household visits to collect information about illness events and use of health services. The questionnaire was tested in a pilot in the FilaBavi and then revised to be more appropriate to the local language and to common illness pattern (See appendix 1).

3.4.2. The Vietnamese version of the SRQ-20 (paper II and V)

The English SRQ-20 was developed by the WHO as an instrument to screen for psychiatric disturbances. It consists of 20 questions, which have to be answered by "yes" or "no" depending on the presence or not of symptoms. Each question may score 0 or 1. It means that one can get a maximum score of 20. The SRQ-20 has been found to be reliable, valid and adaptable to screen for mental disorders in many countries, especially in the developing world (Araya et al., 1992; Harding T.W, 1980; Mari and Williams, 1985, 1986b; WHO, 1994).

The English version of SRQ-20 was translated into Vietnamese by the principal investigator together with another Vietnamese medical doctor. A Vietnamese Bachelor in English language then retranslated the instrument back to English, and the original questions were identified adequately. The Vietnamese version was discussed by a group of researchers and psychiatrists to identify questions potentially difficult to understand in the Vietnamese setting. A few wordings were thus modified. Pilot testing was performed on patients at the consultation department of the Vietnam National Institute of Mental Health (NIMH), on staff and patients at the district hospital and on some persons in the community of the Bavi District. Finally, a few other modifications of wording were made in order to make the instrument valid for a Vietnamese rural setting. These procedures were performed the procedures as described elsewhere (Harding T.W, 1980; Orley, 1979).

Some questions about background information, such as education, occupation, current marital status and employment status during the last 12 months prior to the interview were added to the original SRQ-20. In paper V, questions about use of health services were also added (See appendix 4).

3.4.3. The Vietnamese version of AUDIT (paper III and IV) and the CIDI core version 2.1, section J (paper III).

The AUDIT was developed by the WHO and has been used as a screening instrument for alcohol problems. It can be used to identify whether a person has hazardous drinking, harmful drinking and alcohol dependence. The AUDIT instrument consists of ten questions, with a possible maximum score of 40. The questions 1 to 8 may score 0 to 4 points, and questions 9 and 10 may score 0, 2, or 4 points. The AUDIT questions cover three main domains. The first domain is called "hazardous alcohol use" and includes 3 questions. The second domain includes three questions and is called "dependence symptoms". The final domain includes 4 questions, called "harmful alcohol use". The AUDIT has been translated and has been used in several countries. It has enjoyed widespread use by both health workers and alcohol researchers (Babor et al., 2001) (See appendix 2).

The Composite International Diagnostic Interviews (CIDI) was developed by the WHO to assess different mental disorders according to criteria in the ICD-10 and in the DSM-IV. This instrument can be used by lay interviewers and no clinical judgment is required to rate the respondent's answers. Section J consists of 23 questions regarding alcohol use, alcohol abuse, withdrawal, and alcohol dependence conditions. It is considered to have high acceptance across cultures and excellent reliability for the substance use questions (Cottler et al., 1991).

The English version of the AUDIT and the CIDI – 12 months core version 2.1, section J were both translated in to Vietnamese. Back-translation procedures were performed through several steps in order to keep the translated version in concordance with the original and to be adaptable to Vietnamese culture. We followed the procedures described by Room et al.,1996. Some questions about background information were also added to the Vietnamese AUDIT.

3.5. Data collection

In all five studies we employed interviewers who had permanently worked in FilaBavi since 1999. All of them were female, aged 25-35 years and had high school level of education. The interviewers were selected based on their capacity to do interviews and to sustain a good relationship with the community.

Study 1- Self-reported illness and use of health services: In this study we used data collected in a regular follow-up survey of FilaBavi from September to December, 1999. Information regarding health events and use of health services of each household member during four weeks preceding the interview were collected.

Study 2- Validity of SRQ-20: The data collection was completed involving two steps. Firstly, six interviewers of FilaBavi were recruited and trained to perform interviews with the Vietnamese version of SRQ-20. Secondly, all study subjects were examined by a qualified psychiatrist, who is working in the Hanoi Medical University. The psychiatric assessments were performed without knowledge about the results of the SRQ assessments. The CIDI was used to facilitate the psychiatrist's decision about the presence or absence of the psychiatric disorders (WHO, 1997).

Study 3- The use of AUDIT in rural Vietnam: In the first step, six interviewers were trained to conduct interviews with AUDIT. In the second step, eight other interviewers were trained to assess alcohol use and alcohol problems by interviews with the Vietnamese version of CIDI 2.1, section J. The CIDI interviews were performed shortly after the interviews with AUDIT and the interviewers were blind to the preceding interview results. The interviewers used hand cards to facilitate the interviewee's estimation of alcohol intake. The hand card had pictures of common beverages in the setting and the corresponding units for standard drinks (See appendix 3).

Study 4: Alcohol use and alcohol problem : Twenty five interviewers were trained to conduct all interviews using the AUDIT in 31 selected clusters. Some background information used in this study was taken from recensus 2 in 2003.

22

Study 5: Mental distress : In this study we used the SRQ-20 that was assessed in the study 2 to do individual interviews. The same procedures of data collection as in the study 4 were applied.

3.6. Data management

The FilaBavi has employed 6 field supervisors to take responsibility in doing re-interview of 5% of all completed interviews. Field supervisors are also in charge of checking all interview forms before submitting for data entering. A detailed description of the procedures for data management can be found elsewhere (Chuc and Diwan, 2003).

Table 2: Summary of study design, data collection techniques and variables used in five studies

Study	Study design	Main variables	Data collection
1- Self-reported illness	Cross-sectional	- Illness: yes/no - Specific symptoms: yes/no - Use of health services - Background: age, sex, education, economic, occupation	- Household interviews with structured questionnaire
2- Validity of SRQ-20	Cross-sectional	- SRQ-20 scores: ranged from 0 to 20 - Mental disorder: yes/no - Background: age, sex, education, marital status, occupation	- Individual interviews using the SRQ20 - Clinical diagnosis
3- The use of AUDIT in rural Vietnam	Cross-sectional	- AUDIT scores range from 0-40 - At-risk drinking: yes/no - Alcohol abuse/ harmful use according to ICD-10 and DSM-IV: yes/no - Alcohol dependence according to ICD-10 and DSM-IV: yes/no - Background: age, sex, education, marital status, occupation	- Interviews using the AUDIT - Interviews using the CIDI 2.1 section J
4- Alcohol use and alcohol problem	Cross-sectional	- Alcohol use: yes/no (yes if AUDIT score >=8) - Frequency of alcohol use - Quantity of alcohol use - Alcohol problems: yes/no - Background: age, sex, education, marital status, occupation, location, household economy	- Individual interviews using the AUDIT
5- Mental distress	Cross-sectional	- Mental distress: yes/no (yes if SRQ-20 score>=7) - Specific symptoms: yes/no - Use of health services: yes/no and types of services - Background: same as in paper IV	- Individual interviews using the SRQ-20

3.7. Main variables and definitions

3.7.1. Terminologies used

- *Validity of an instrument* refers to how well an instrument measures what it intends to measure. There are several facets of validity:
  - *Face validity* simply indicates whether, on the face of it, the instrument appears to be assessing the desired qualities.
  - *Factorial validity* is one type of construct validity, which refers to how well a scale measures the proposed underlying factors or dimensions. Through factor analysis it can be empirically demonstrated whether any discernible underlying theoretical construct exist.
  - *Criterion validity* measures to what extent the instrument correlates with a "gold standard" supposed to measure the same characteristic.
- *Reliability of an instrument, or consistency* is concerned with error in measurement. There are several ways to assess reliability of an instrument. In this thesis, we assessed *internal consistency reliability* meaning the consistency between items on a scale.
- *ROC curve* was obtained by plotting sensitivity against the false positive (1-specificity) at each cut-off point.
- *The area under the ROC curve* (AUC) was used as an indicator of test performance. The values of this area range from 0.5 to 1. A value of 1 indicates that the instrument gives a perfect discrimination between case and non-case, and a value of 0.5 implies an ability to discriminate no better than chance (Hajian-Tilaki et al., 1997).
- *Cut-off point* is the minimum acceptable score to define presence of a disease or an illness. This is also called the *cut-off score* or the *threshold score*. For example, the cut-off point 6/7 used in paper V means that those who have a SRQ score of greater than 6 (>=7) will be defined as having mental distress.
- *Standard drink* refers to the amount of 12.6 g pure alcohol, which equals to 330 ml of 5% beer, or 40 ml of 40% liquor, or 130 ml of 12% wine, etc.
- *Binge drinking* was defined by having six or more standard drinks in one sitting.

3.7.2. Health problems

- *At-risk drinking* was defined as a daily alcohol intake higher than 30 g (2.4 standard drinks) for a man and 20 g (1.6 standard drinks) for a woman.
- *Harmful use* was defined according to the criteria for harmful use in the ICD-10 and refers to alcohol consumption that results in consequences for physical and mental health**.**
- *Alcohol abuse* was defined according to the criteria in DSM-IV, which include both social and medical consequences caused by alcohol consumption.
- *Alcohol dependence* was defined according to the ICD-10 and DSM-IV criteria. These include a strong desire to drink alcohol, impaired control over its use, persistent drinking despite of harmful consequences, a higher priority given to drinking than to other activities, increase alcohol tolerance, and a physical withdrawal reaction when discontinuing alcohol use (Hasin, 2003).
- *Illness* was defined as a report of at least one of the following conditions: Staying in bed or being absent from work for at least one day, reduced working capacity, or having used any kind of treatment.
- *Alcohol problems* was defined by having an AUDIT score greater than 7 (paper IV) or by having one of three conditions (at risk drinking, alcohol abuse/harmful use, alcohol dependence) based on results of interviews with CIDI 2.1 section J (paper III).
- *Mental distress* was identified by a "yes" response to more than 6 questions of SRQ-20 (having an SRQ-20 score of 6).

3.7.3. Use of health services

The following types of health services use were identified:

- *Community health stations*
- *District hospital/policlinics (DH)*
- *Provincial/central hospitals (PH/CH)*
- *Private practitioners*: included physicians, private pharmacies and drug vendors.
- *Traditional healers*: provide traditional medicines

- *Self-treatment* included buying/use either modern or traditional medicines without medical professional consultation.

3.7.4. Socioeconomic status
- *Household economic status* classification was provided by the local authority according to the guidelines from government and the District People Committee, which is mainly based on household's income from rice production and qualitative assessment. (Paper I-V)
- *Education level* was identified based on the level of education that the study subject had performed. (Paper I-V)
- *Occupation* was determined according to the current job that had occupied the largest time of an individual. (Paper I-V)
- *Employment status* was identified based on self-reported information regarding number of month during the last 12 months prior to the interview that one had been employed and get payment from their work. (Paper V)
- *Marital status* refers to current marital status at the date of interview, which includes married, single (never married), and previously married (separated, widowed, or divorced). (Paper IV and V)

3.8. Statistical analyses

Data analysis was performed with STATA version 7.0 and version 8.0.

Proportions and means were calculated. In paper II, chi-square test was used to compare the discriminating ability between case and non-case of the SRQ-20 in each socioeconomic subgroup by comparing the areas under the ROC curves (AUC).

In paper III, ANOVA test was employed to test the differences in means of AUDIT score between socioeconomic groups.
The differences between men and women regarding the proportion of each SRQ symptom (in paper V) were examined using Z-test.

To validate the Vietnamese version of SRQ-20 and AUDIT, we calculated sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV), correct classification rates and misclassification rates (paper II and paper III). In paper II, the psychiatrist's decision was used as criterion (gold standard) to validate the SRQ-20. In paper III, both DSM-IV and ICD-10 criteria of alcohol problems were used as criterion to evaluate the AUDIT.

We used Kappa test to assess the agreements between ICD-10 and DSM-IV in giving diagnosis of harmful use/alcohol abuse and alcohol dependence (paper III).

Receiver Operating Characteristic (ROC) analysis was applied to assess the ability of SRQ-20 and AUDIT in discriminating cases and non-cases of mental disorder and alcohol problems (paper II and paper III).

Cronbach coefficients alpha were calculated to assess internal consistency reliability of SRQ-20 and AUDIT (paper II and paper III).

Factor analysis was performed to find out the underlying components of the questionnaires, to examine the factorial validity of the SRQ-20 and the AUDIT as additional analyses for paper II and paper III. The principal components technique with varimax rotation was applied. In factor analysis, eigenvalues of >= 1 was required.

Multiple logistic regression analysis was performed in paper I, paper IV and paper V. In paper I, logistic regression was applied to examine the association between background variables and the use of health services. Interactions between background variables (education, occupation, economic status) were examined. In paper IV and paper V, logistic regression analysis was applied to estimate adjusted odds ratios of having alcohol problems and mental distress in different socioeconomic groups. In these all models, we included all background variables as independent variables. The Chi-square Goodness-of-fit-test was performed to evaluate the regression models. Weights for survey data have been made in our multiple regression analyses in paper IV and paper V. However, unweighted results have been reported since no significant difference between the weighted and unweighted results were found.

3.9. Ethical clearance

All studies conducted within FilaBavi system. This system is supported by Vietnamese Ministry of Health (MoH) and Sida/SAREC in Sweden. The Mo H has given ethical permission for this surveillance system. The project was approved by the Research ethics committee at Umeå University (reference number: drn 02-420). The studies 2-5 were also approved by the ethical committee at Medical Faculty of Göterborg University (reference number: O 672-02). The local authority of Bavi district and the Ethical Committee of Hanoi Medical University approved all of five studies. All participants gave consent to participation.

4. RESULTS

4.1. Evaluating instruments

4.1.1.The Vietnamese Self – Reporting Questionnaire (SRQ-20)-(paper II)

Face validity

The SRQ-20 had high face validity in our setting. It was found clear and relevant by staff and it was well understood by subjects.

Factorial validity

Table 3 shows the results of factor analysis using principal components technique with varimax rotation. Items with factor loadings less than 0.40 were disregarded. Two main factors were extracted with an eigenvalue greater than 1. The factor I seemed to present "somatic" symptoms and explains 24.6% of the variance. The factor II seemed to present "depressive" symptoms and explains 8.8% of the variance.

Table 3: Factor analysis of the SRQ-20 using principal components technique with varimax rotation

Factor I: *somatic symptoms* Eigenvalue: 4.8, variance 24.6%		Factor II: *depressive symptoms* Eigenvalue: 1.8, variance 8.8%	
Question	*Loading*	*Question*	*Loading*
20 Easily tired	0.75	16 Feeling worthless	0.77
18 Feeling tired all the time	0.73	17 Having thought of ending life	0.74
1 Headache	0.64	10 Crying more than usual	0.57
8 Having trouble thinking clearly	0.58	14 Being unable to play useful part in life	0.47
6 Feeling nervous, tense or worried	0.49	11 Difficult to enjoy daily activities	0.45
4 Easily frightened	0.45	9 Feeling unhappy	0.40
2 Poor appetite	0.44		
3 Sleeping badly	0.43		

Criterion validity

Validity indices

At all cut-off scores, the validity indices of SRQ-20 in community setting seemed to be higher than those obtained in the hospital setting. Positive predictive values were much lower than negative predictive values at all cut-off points. Misclassification rates varied from 23 to 54% in the hospital setting and from 9 to 60% in the community setting.

Optimal cut-off point

According to the ROC analyses (**figure 10**), the selected optimal cut-off point for case-detection in the community sample was 6/7 with a sensitivity of 85%, a specificity of 61%, a PPV of 19% and a NPV of 97%. For the case-detection in the hospital sample, the corresponding cut-off was 5/6 with a sensitivity of 85%, a specificity of 46%, a PPV of 34% and a NPV of 90%. At the optimal cut-off point, misclassification rates in hospital and community setting were 44% and 37%, respectively.
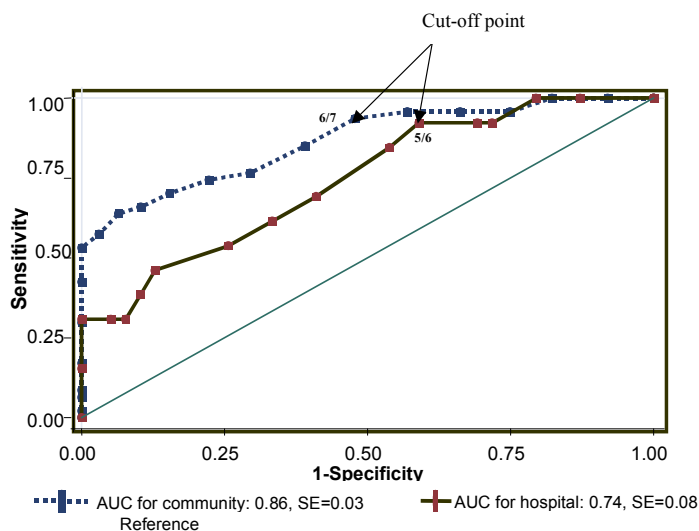
Figure 10: ROC analysis of the Vietnamese SRQ-20 in community sample and in district hospital.

Discriminating ability

The discriminating ability between case and non-case of the SRQ-20 was acceptable in both samples. The AUC in the community sample was 0.86 (95%CI: 0.81- 0.93) and in the hospital sample was 0.74 (95%CI: 0.59-0.89).

The comparisons of the AUCs between socioeconomic subgroups revealed that the instrument performed better in the age group of 18-24 years compared to other ages ($p<0.01$), and in single persons compared to married persons ($p<0.05$), as well as compared to divorced/separated/widowed persons ($p<0.05$).

Internal consistency reliability of the SRQ-20

The SRQ-20 had an acceptable internal consistency with an overall Cronbach coefficient alpha for all of items was 0.83(>=0.81).

4.1.2. The Vietnamese Alcohol Use Disorder Identification Tests (AUDIT)-(paper III)

Means of AUDIT score in different alcohol problem groups
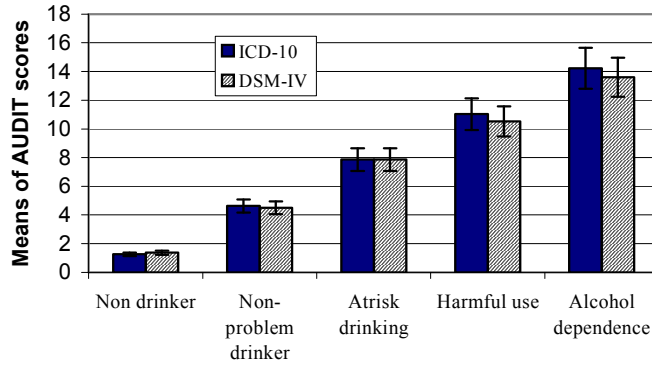
Figure 11: Age-adjusted means of AUDIT score in different alcohol problems groups according to ICD-10 and DSM-IV

Age-adjusted mean scores of AUDIT increased significantly by increasing level of alcohol problems. Similar results also were found when DSM-IV criteria were followed (**Figure 11**).

Face validity

The AUDIT was found to be relevant and cover all important domains of alcohol problems including at risk drinking, alcohol abuse and alcohol dependence.

Factorial validity

Factor analysis indicated that with the eigenvalues greater than 1, three principal factor retained. Factor I presents "hazardous alcohol use" and explains 37.6% the total variance. Factor II presents "dependence" symptoms and can explain 10% of the variance. Factor III presents "consequences", explains 14.6% of variance (**Table 4**).

32

Table 4: Factor analysis of the AUDIT using principal components technique with varimax rotation

Factor and items	Loadings
Factor I: *Hazardous alcohol use, eigenvalue: 3.76, variance:37.6%*	
Q1: Frequency of drinking	.80
Q2: Typical quantity	.88
Q3: Frequency of heavy drinking	.71
Q10: Other concerned about drinking	.61
Factor II: *Dependence, eigenvalue: 1.07, variance: 10.7%*	
Q5: Increase salience of drinking	.86
Q6: Morning drinking	.63
Factor III: *Consequences, eigenvalue: 1.46, variance: 14.6%*	
Q4: Impaired control over drinking	.69
Q8: Blackout	.84
Q9: Alcohol related injuries	.67

Criterion validity

The agreement between two criteria

The agreement between DSM-IV and ICD-10 in diagnosing harmful use/alcohol abuse was Kappa equal to 0.68 (SE=0.06) and the agreement between two diagnostic criteria in diagnosing alcohol dependence was Kappa equal to 0.98 (SE=0.07).

Optimal cut-off points

The cut-off point 7/8 seemed to be optimal with an acceptable sensitivity and specificity to detect at risk drinking and alcohol dependence. To detect alcohol abuse (DSM-IV) and harmful use (ICD-10) the cut off point 9/10 would be optimal (**Figure 12**).

Validity indices

The AUDIT had good sensitivity, specificity at the proposed optimal cut-off point. NPV was very high (91-100%) while the PPV was lower (6.9-55%). The AUDIT had lower validity indices (62.5% of sensitivity and 83.6% of specificity) in detecting alcohol abuse according to DSM-IV (**Table 6**).

<u>Discriminating ability</u>

The values of AUCs ranged from 0.82 to 0.91, these are all close to 1 and significant different from 0.5 indicating a good performance of AUDIT in discriminating between persons with and without alcohol problems (**Table 6**).
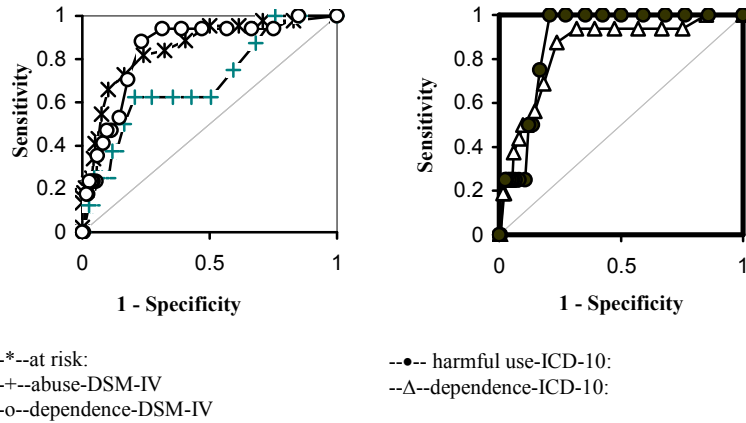

--*--at risk:
--+--abuse-DSM-IV
--o--dependence-DSM-IV

--●-- harmful use-ICD-10:
--Δ--dependence-ICD-10:

Figure 12: ROC curves and AUCs of the AUDIT for detecting alcohol problems among men according to ICD-10 and DSM-IV.

Internal consistency reliability

Table 5: Inter-item correlation of the AUDIT questions

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total score
Q1	1										
Q2	.64	1									
Q3	.44	.60	1								
Q4	.32	.24	.23	1							
Q5	.16	.06	.26	.19	1						
Q6	.37	.37	.48	.19	.34	1					
Q7	.38	.36	.45	.39	.17	.43	1				
Q8	.26	.24	.16	.51	.03	.12	.38	1			
Q9	.14	.08	.14	.20	.01	.03	.16	.41	1		
Q10	.55	.42	.37	.28	.10	.23	.42	.36	.22	1	
Total score	.83	.75	.68	.50	.27	.55	.63	.48	.29	.77	1

We found that three first questions and the last had higher correlation coefficients with the total AUDIT score. The AUDIT had an acceptable internal consistency reliability with Cronbach coefficient alpha was 0.80 (CI>0.77) (**Table 5**).

Table 6: Validity indices of AUDIT as the predictor of at risk drinking, harmful use, alcohol abuse and alcohol dependence in men according to ICD10 and DSM-IV at the cut-off point 7/8 and overall AUCs. (Paper III)

Alcohol problems	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Correct classified (%)	AUC (95% CI)
At risk drinking	81.8	76.1	55.2	91.7	77.3	.85 (.78-.93)
Harmful use (ICD-10)	100	83.6	6.9	100	70.6	.91 (.84-.98)
Alcohol abuse (DSM-IV)	62.5	84.3	11.1	98.1	77.9	.82 (.72-.91)
Alcohol dependence (ICD-10)	93.8	87.4	24.1	98.6	87.6	.84 (.74-.94)
Alcohol dependence(DSM-IV)	88.2	76.9	25.9	98.6	77.8	.85 (.75-.94)
Any alcohol problems (*)	70.7	88.3	70.7	88.3	83.3	.86 (.80-.92)

(*) Additional analysis

4.2. Health problems

4.2.1. Self-reported illness (paper I)

One-month prevalence of self reported illness was 48%. The 4 commonest symptoms were headache, fever, cough (19-22%), and bone and joint pain (5.8%). Women reported more illness than men did (Paper I) (**Table 7**).

Table 7: Summary of prevalence of self-reported illness, mental distress and alcohol problems (Paper I, IV and V)

Source	Health problems	Men	Women	Overall
Paper I	Self-reported illness (n=48,919)	44.2	50.8	47.7
	Cough	21.2	21.6	21.4
	Fever	19	19.3	19.2
	Headache	16.6	24.7	21.6
	Bone and joint pain	3.8	7.3	5.8
Paper V	Mental distress (n=3425)	3.9	6.8	5.4
Paper IV	Alcohol use and alcohol problem (n=3423)			
	Alcohol use	87.3	10.2	48.4
	Weekly binge drinking	5.7	0.06	2.5
	Daily binge drinking	3.6	0	1.8
	Alcohol problems	25.5	0.7	13

Among women the presence of common illness was significantly associated with age. In comparison with persons 0-19 years, the odds ratios of having common illness was 1.8 (CI: 1.6-2.1) for persons 20-49 years old and 4.3 (CI: 3.7-4.9) for those who were 50 and older.
Among men, common illness was significantly associated with low education. In comparison with graduates, odds ratios for common illness by illiterates was 1.5 (CI: 1.1.-2.0) and by other level of education was 1.2 (CI: 1.1-1.4).

4.2.2. Mental distress (paper V)

The overall prevalence of mental distress was 5.4%, in women it was 6.8% and in men was 3,9%. The prevalence increased by age in both men and women (**Figure 13**). However, mental distress was only significantly associated with age among women. Compared to persons 18-24 years old, odd ratios of having

mental distress were 2.8 (CI: 1.1-2.8) for persons 25-34 years; 3.5 (CI: 1.3-9.5) for persons 35-44 years; and 6.2 (CI: 2.5-15.7) for persons 45-60 years.

Men who were previously married, illiterate, who had unstable employment and persons living in the highlands had significantly higher rates of mental distress. Illiterate men were 8 times more likely to suffer from mental distress compared to men who had high school or higher education (prevalence: 15.4% vs. 2.8%; OR=8.0; CI: 1.3-48.5).
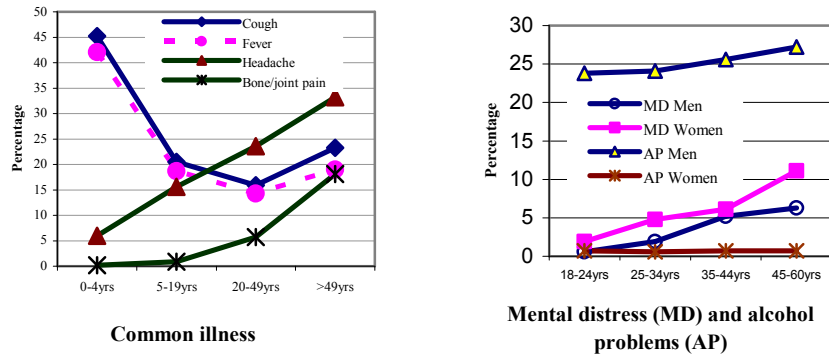

Figure 13: Prevalence of 4 common illnesses, mental distress and alcohol problems distributed by age and sex. (Paper I, IV and V)

The prevalence of mental distress among men who had been employed for 1-3 months was 9.5%, compared to 4.7% in men who had been employed for 3-6 months and 1.7% in men who had been employed for 7-12 months. These differences were statistically significant in logistic regression analysis after controlling for other background variables.

4.2.3. Alcohol problems (paper IV)

The prevalence of alcohol use and binge drinking during the last 12 months among men were much higher than that among women. The prevalence of alcohol problems was 25.5% in men and only 0.7% in women (paper IV).

Gender was the most important predictor of alcohol problems. The odds ratio for having alcohol problems among men was OR=51.6 (CI: 25.5-104.4) compared to women.

Men who lived in mountainous areas had lower rates of alcohol problems (OR=0.5; CI: 0.4-0.8) compared to those who lived in the highlands.

Separated, widowed or divorced women had significantly higher odds ratio for having alcohol problems (OR=8.9; CI: 2.3-35.0).

Higher educated women significantly had a higher rate of having alcohol problems (OR=4.0; CI: 1.2-14.0).

4.3. Use of health services

4.3.1.Use of health services of persons with common illness (paper I)

Self-treatment was the most common measure taken irrespective of symptoms (68-70%), followed by the use of health services at private providers (18-24%) (**Table 8**).

Table 8: Proportion of individuals reporting illness who had taken different health care activities by sex, education level, occupation and household economic status. (Paper I)

	Self Treatm -ent	Traditi -onal healer	Private	CHS	Policlinic, district hospital	Provincial, Central hospital
Sex						
Men *(n= 8032)*	68.1	1.3	24.9	6.0	4.8	1.6
Women *(n= 10781)*	69.7	2.2	23.9	6.2	3.8	1.6
Education						
Illiterate (n=930)	68.2	3.8	24.3	6.7	3.8	0.3
School-leavers (n=10360)	68.4	2.2	23.4	5.5	4.2	1.9
Graduates (n= 888)	67.3	2.9	18.0	4.3	10.4	5.2
Occupation						
Farmer (n=8253)	69.4	2.1	23.1	5.7	3.1	1.8
Employee (n=1105)	61.4	2.9	19.1	4.0	17.8	4.3
Other (n= 2239)	67.9	3.4	25.6	6.1	4.6	2.1
Economic status						
Very poor (n=3844)	70.1	1.3	23.1	6.7	3.9	0.7
Poor (n=9777)	70.3	1.8	24.6	5.9	3.6	1.5
Non-poor (n= 4081)	69.8	2.2	24.0	5.0	5.8	2.4

38

We found that in comparison with employees, farmers and other occupations used significantly less health services at policlinics and district hospital. This is the same in both men (Farmer: OR=0.2, CI: 0.17-0.3; other: OR=0.3, CI: 0.2-0.4) and women (Farmer: OR=0.1, CI: 0.09-0.2; other: OR=0.2, CI: 0.1-0.24).

4.3.2. Use of health services among person with mental distress (Paper V)

The proportion of persons with mental distress using health services was 58% (in men: 52% and in women: 62%). People with mental distress sought health care more often because of "somatic" symptoms rather than "emotional and feeling" symptoms. The proportion of persons who had used health services was highest among those who had headache (73% and 81%), uncomfortable feeling in the stomach (29% and 41%), poor digestion (25.8% and 24.4%) or hands shaking (17.9% and 12.9%).
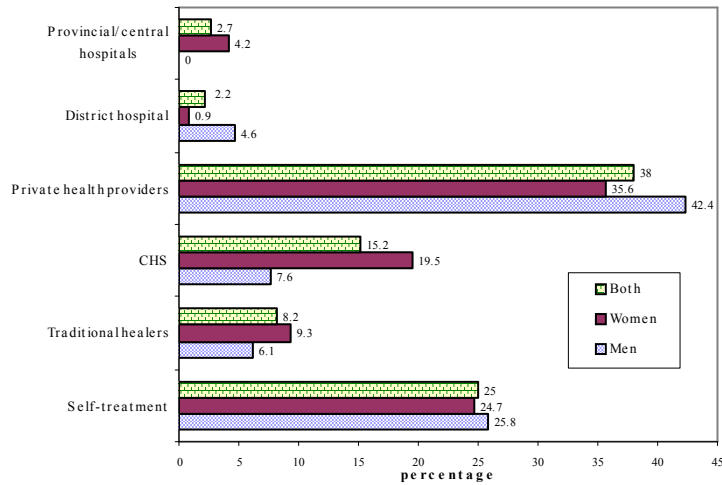
Figure 14: Use of health services among persons with mental distress.(Paper V)

The most common place to seek care was at private health providers (38%). Very few persons with mental distress (5%) sought health care at district hospital and at provincial/central hospitals (**Figure 14**). The pattern of use of health services did not vary by socioeconomic groups.

39

5. DISCUSSION

5.1. Methodological consideration

5.1.1. Study design

All five studies included in this thesis are community based cross-sectional studies that were conducted within the framework of a DSS. The DSS provided good sampling frames, data processing and management for these studies. These are crucial to ensure the validity of the community based studies. The DSS is a valuable tool for assessing and monitoring the health situation of the population, especially in the countries where health information system is still weak.

In a community-based study, all individuals of the community would have an equal chance to be included as study subjects, then the results can reflect the situation of that whole community (Gordis, 2000). The advantage of cross-sectional study is that the observations are done in a certain period of time or in a point in time, thus the cost can be reduced. However, it is not possible to infer causal relationship between variables in a cross sectional study (Gordis, 2000). In paper I, IV and V we just describe socioeconomic differences in self-reported illness, mental distress and alcohol problems. We did not aim to analyse the causal relationship between sociodemographic factors and health problems. Knowledge about the occurrence of health problems and the association between health problems and socio-demographic status can provide important background information for health planning.

5.1.2. Internal validity

Internal validity refers to the validity of the inference for the study population. Three main types of biases may threaten validity in a study: selection bias, misclassification or information bias, and confounding (Gordis, 2000). The selection bias should not be serious in our studies. First, because we have a large randomly selected sample in paper I, and we did consider of design effect in estimating sample size and in analysing data of paper IV and V. Furthermore,

high response rates (98-100%) were achieved in all five studies. Confounding factors were controlled in all papers by using multiple logistic regressions analyses. Thus, the main possible source of bias in our study would be misclassification.

Non-differential misclassification: the use of screening instruments

Non-differential misclassification occurs if misclassification is equally distributed in all groups of exposure or outcome involved in the analysis. It often leads to underestimation of the association between variables. In the study where instruments are used to give diagnoses instead of physician's assessment, this type of bias is likely to appear when classifying the subjects into disease and non disease groups. If the instrument has both 100% sensitivity and 100% specificity, then this bias would not appear (Epidemiologic Research & Information Center (ERIC), 2001; Gordis, 2000).

Non-differential misclassification seems obvious in our paper IV and paper V since the SRQ-20 and the AUDIT did not have a perfect sensitivity and specificity of 100%. The association between socioeconomic factors and mental distress and alcohol problems may be underestimated. As evaluated in paper III, at cut off point 7/8 the AUDIT had 71% sensitivity, 88% specificity and 12% misclassification to detect alcohol problems. In paper II, at the cut off point of 6/7 the SRQ-20 had 85% sensitivity and 61% specificity and 37% misclassification. Thus, the misclassification in paper V would be larger than that in paper IV. It should be noted that, however, the term "mental distress" is used in paper V instead of "mental disorder".

Interview bias

In all five studies we used structured questionnaires and they were all interviewer administered. The use of face-to face interview was the best choice in settings where study subjects have poor reading skill and the use of interviewer-administered questionnaires allows clarification of ambiguous answers (Babor et al., 2001; WHO, 1994).

Two sources of bias should be considered: interviewer bias and reporting bias.

In our studies, the use of female interviewers may lead to underreporting alcohol problems and mental distress among male respondents since a man is more likely to conceal his feelings, emotions and undesirable behaviours in front of a woman. Underreporting of alcohol use and alcohol problems among female subjects might also occur, since these are socially undesirable behaviours (Mathiowetz, 1999). However, within the context of the FilaBavi system, female surveyors have been preferred because they normally have better communication with the community and they are considered more careful compared to males in doing interviews.

A number of measures have been taken to reduce information bias as well as to increase the reliability in our studies: questionnaires were developed, tested and revised before conducting surveys to be sure that the questions are clear and understandable to the respondents. Protocols were standardised and guidelines for interviewers and researchers were well developed. Interviewers were carefully recruited and trained. Five percents of interviews were repeated by field supervisors. Respondents were explained about the objectives of study, and that the confidentiality of the information provided by respondents would be guaranteed.

Reporting bias is another form of information bias, a common one being recall bias due to the differences in accuracy of recall between study subjects. The level of recall bias varies by the length of recall period, by the importance of the event, and by characteristics of respondents (sex, age, education, etc) (Epidemiologic Research & Information Center (ERIC), 2001; Fernandez et al., 1999; Gordis, 2000; Ross and Vaughan, 1986). The length of recall period that have been used in studies on health status and use of health services quite varied, however, a 4-week recall period has been commonly used (General Statistical Office of Vietnam, 1999; Helasoja et al., 2006; Macran et al., 2003; Zere and McIntyre, 2003).

In paper I, we decided to use a 1-month recall period based on our observation in a pilot period in FilaBavi and based on experience from other studies (General Statistical Office of Vietnam, 1993). In the other four papers, we used the recall periods as originally designed by the developer of the instruments. The 12-month recall period used in the paper III and paper IV may be

questioned. However, the AUDIT questions require the estimations of the average level of alcohol use and the normal frequency of alcohol related problems. A shorter recall period could provide a valid picture of the current situation, which may not be able to reflect the typical pattern of consumption and alcohol related problems by infrequent drinkers. Furthermore, the 12-month recall period matches the 12-month reference time period to diagnose whether one has alcohol problems or not according to ICD-10 and DSM-IV criteria (Bloomfield et al., 2003; Hasin, 2003).

5.1.4. Generalizability

Generalizability, or external validity, of a study is the validity of the results applied to persons outside the study population. Our study supports the generalization for other rural areas in Vietnam and perhaps also in other developing countries in the region. However, generalization of our findings to persons in urban areas should be made with caution, since the social contexts in urban areas are quite different from rural areas. In the urban areas, the differences in life styles and living conditions between socioeconomic groups seems to be larger, while gender differentials are smaller.

5.1.5. Choosing an optimal cut off point

Changing the cut off point alters the proportion of well and sick people correctly classified by the test such that an increase in sensitivity is generally associated with a decrease in specificity (McDowell and Newell, 1996). The choice of the optimal cut-off point depends on what one wants to achieve with the screening. High sensitivity (lower cut-off) should be prioritized if it is important to detect all cases, but high specificity (higher cut-off) should be prioritized if it is important that all detected cases are "true" cases.

The performance of instruments is culturally dependent, the validity as well as appropriate cut-off points of instrument can thus differ between areas. Even, in a single setting, the optimal cut off point may differ between different groups in society. The use of cut-off points for different socio-demographic groups in community and in primary health care has been demonstrated elsewhere (Abdullah S. Al-subaie, 1998; Harpham et al., 2003; Sartorius and Janca, 1996).

43

We considered the trade-off between sensitivity and specificity to select the optimal cut-off points, and ROC analysis is useful for this purpose. The ROC analysis is a valuable method for selecting the optimal cutoff point. Alternatively, specific likelihood ratio has been used to summarize sensitivity and specificity across cut off points; their use seeks to avoid the undue reliance on a single cutting point (Chen et al., 2005; McDowell and Newell, 1996; WHO, 1994). However, as the likelihood ratio indicates how much more likely the test result occur in persons with disease than in those without, this is more clinically useful (McDowell and Newell, 1996).

5.2. Quality of the SRQ-20

5.2.1. Validity

Factorial validity is a form of construct validity that is established by factor analysis (Darlington RB, ; WHO, 1994). We did not perform factor analysis in paper II. But, in the additional analysis (table 2), we found two main factors that the SRQ-20 covers. However, using factors as sub-scales has not been suggested since the overall correspondence between studies has been not found (WHO, 1994).

In paper II, aiming at a sensitivity of at least 80% and based on the AUC values, we found that the optimal cut off point for the community sample was 6/7. A range of cut-off points from 3/4 to 11/12 have been used in other studies over the last three decades (Abdullah S. Al-subaie, 1998; Alem et al., 1999; Ghubash et al., 2001; Penayo et al., 1990; WHO, 1994). However, the optimal cut-off point generally reported has been 7/8, as in the studies reported from Kenya, Senegal, Brazil, Guinea, and Zimbabwe (Harpham et al., 2003; Sartorius and Janca, 1996; WHO, 1994). In accordance with the study from Ethiopia, we found higher levels of sensitivity and specificity in the community setting compared to the hospital setting at each cut-off point (Kortmann and ten Horn, 1988).

In our study, at the optimal cut off point the SRQ-20 had 85% sensitivity and 61% specificity. These indices are acceptable as they are in the normal range of

other studies. However, some studies found a high sensitivity and specificity at the optimal cut off point (WHO, 1994).

The ROC analyses revealed that the Vietnamese version of SRQ had a high ability to discriminate between cases and non-cases. The value of AUC in our study meant that there was an 86%-likelihood that a randomly selected person with mental disorder would receive a higher score on the SRQ than a randomly selected person without mental disorder. This is comparable to findings in other studies (Ghubash et al., 2001; Mari and Williams, 1985; WHO, 1994).

We found that although persons aged 18-24 years and single persons required higher threshold scores to be defined as a case, the performance of SRQ, in terms of AUC, was significantly better in these groups. We do not have any clear explanation for this finding. Previous studies have not shown any clear impact of socio-demographic factors on the performance of the SRQ. Mari and Williams identified different cut-off points for male and female in Brazil but did not find any effect of socio-demographic conditions on the validity of the SRQ (Mari and Williams, 1986a, b).

5.2.2. Reliability

The internal consistency indicates the intercorrelation between items in a questionnaire. The high intercorrelations among items means that it would be easily to create two versions that are equivalent and therefore reliable. Thus, the higher the internal consistency, the higher test-retest reliability will be (McDowell and Newell, 1996).

In paper II, we did not examine the reliability of SRQ-20. However, we have added analysis of internal consistency of SRQ-20 in page 31 showing that the SRQ-20 had a good internal consistency with a Cronbach coefficient alpha of 0.83 (CI>=0.81). Iacoponi and Mari (1989) in Portuguese found a satisfactory coefficient of 0.81, while other researcher rarely reported this index (Iacoponi and Mari, 1989; WHO, 1994).

Another indicator often used to examine the reliability of an instrument is the agreement between instruments that measure the same condition. Several studies reported a strong correlation between the SRQ-20 and other equivalent measures, such as the General Health Questionnaire, indicating high reliability

of the SRQ-20 (Araya et al., 1992; Ghubash et al., 2001; Mari and Williams, 1985).

5.3. Quality of the AUDIT

5.3.1. Validity

The AUDIT items were originally developed to cover three main domains that including hazardous alcohol use (questions 1-3), dependence symptoms (questions 4-6) and harmful alcohol use (questions 7-10). In factor analysis, we also found three main factors that can explain 63.1% of the variance. However, items of three factors extracted in our study have not exactly concurred with the three original factors. In principal components analysis, Skipsey et al. found a single factor with the best fit (Skipsey et al., 1997), while Bergman found two factors explaining 55% of the variance, that were "hazardous alcohol use" and "alcohol –related problems" (Bergman and Kallmen, 2002).

In paper III, we selected the cut off point 7/8 as the optimal cut-off point. This cut off point produced very satisfactory validity indices in detecting at risk drinking, harmful use and alcohol dependence. The optimal cutoff point of the AUDIT for alcohol use disorders has varied between studies, such as a score of 5 (Bergman and Kallmen, 2002; Piccinelli et al., 1997) or 8 (Babor et al., 2001; Volk et al., 1997). The cut-off point of 7/8 has been found and used as an optimal threshold in several studies and has been called as the "standard cut- off point" elsewhere (Conigrave et al., 1995a). This cut off point has been suggested for identification of alcohol problems in primary care (Babor and John, 2001).

In several studies from Australia, Bulgaria, Kenya, Mexico, Norway, USA (Bradley et al., 1998; Daeppen et al., 2000; Fiellin et al., 2000; Reinert and Allen, 2002; Saunders et al., 1993) Hong Kong (Leung and Arthur, 2000), the cut-off point of 7/8 had a sensitivity and specificity of around 80%. Some studies even reported such high sensitivity and specificity at a cut- off of 4/5 (Daeppen et al., 2000; Piccinelli et al., 1997). However, Hans et al. in Germany found a low sensitivity of 33%; 37% for at risk drinking and for current alcohol misuse at the cut-off point of 7/8 (Rumpf et al., 2002).

The validity of the AUDIT has also been proved by ROC analysis that shows good performance of the AUDIT in discriminating persons with alcohol problems and those without (Bergman and Kallmen, 2002; Chen et al., 2005; Conigrave et al., 1995b; Skipsey et al., 1997).

The cultural and social context differences explain the variation in validity of the AUDIT (Babor et al., 2001; Helman, 2001; McDowell and Newell, 1996). But, in general AUDIT had a good validity in detecting alcohol problems. The AUDIT even performed much better than other methods that require the employment of more costly laboratory tests (Coulton et al., 2006).

5.3.2. Reliability

We found an acceptable Cronbach coefficient alpha of 0.80. Several studies have reported a comparable reliability of the AUDIT (Bergman et al. (1998), Bergman et al., 2002). We did not estimate test-retest reliability of the AUDIT, but other studies have shown high reliability of the AUDIT for the use in primary setting, as well as in community setting (Babor et al., 2001; Bergman and Kallmen, 2002).

5.4. The prevalence of health problems

5.4.1. Self-reported illness

We found a one month prevalence of self-reported illness of 48%. Lower rates of illness have been reported in other studies in Vietnam (Ministry of Health and General Statistic Office, 2003; Ministry of Health of Vietnam, 2000; Ministry of Health of Vietnam and Health Policy Unit, 2002). The VNHS in 2001-2002 conducted in a sample that is representative for the whole country reported a prevalence of 37%. The reasons for this are unclear. Several factors could influence to the respondents' answers, such as study areas, questionnaire used, interviewers, etc. (Helman, 2001; Mathiowetz, 1999). For instance, in a sentinel survey 2001-2002 in 7 provinces of Vietnam, the following question was asked to obtain information about illness: "During the last two weeks, was

there any one in your family who got sick? If yes, specify the disease or symptom/sign". Thus, minor symptoms could be missed. In our survey, after question about the occurrence of any illness, questions about the presence of some specific illnesses then continued. Furthermore, the interviewers in our study were well trained and supervised, which may imply a higher level of reported illness by the households visited. However, the illness pattern we found is consistent with other studies in Vietnam (Ministry of Health of Vietnam, 2000; World Bank, 2001). This is similar to findings in health interview surveys from other countries, such as Sweden (Bostrom and Persson, 2001), England (Kind et al., 1998) and Spain (Fernandez et al., 1999).

5.4.2. Mental distress

The prevalence of 5.4% found in this study seems low. The median prevalence of mental distress in developing countries varies from 20% to 30% (Patel and Kleinman, 2003). The 85% sensitivity of the SRQ-20 used in our study does indicate a certain underreporting, but even taking this into account, the "true rate" of mental distress would still be less than 10%. This is also consistent with findings of 4% to 9% prevalence of depression in Hanoi and some other provinces of Vietnam (Binh, 2004; Nghi et al., 2004).

Like in many previous studies from different parts of the world, we found a higher rate of mental distress among women (Alem et al., 1999; Chow et al., 2003; Good, ; Patel and Kleinman, 2003; Rohrer et al., 2005; Strine et al., 2004). Binh (2004) in Vietnam reported a higher prevalence of depression among women, as compared to men (5.8% vs. 2.6%).

We found that the prevalence of mental distress significantly increased with increasing age in women (Alem et al., 1999; Kebede et al., 1999). Some previous studies have not found significant differences between age groups (Araya et al., 2001; Rohrer et al., 2005). Some studies even reported less mental distress in elderly (Chow et al., 2003; Strine et al., 2004). Different classification of age groups and different inclusion criteria to the studies might explain this discrepancy. Furthermore, mental distress is a general term comprising several specific conditions of mental health problems, while the distribution of each condition by age may be not identical.

5.4.3. Alcohol use and alcohol problems

Our main finding was a high level of alcohol use and alcohol problems without any obvious association with socioeconomic background variables. A previous community-based study in Vietnam reported that the prevalence of alcohol problems (alcohol dependence and harmful use) varied from 2% to 20% between areas (Thiem, 2004). Thus, the prevalence of alcohol use and alcohol problems in our setting is at the same level as in other countries with a high prevalence of alcohol problems (Chen et al., 2004; Mendoza-Sassi and Beria, 2003; WHO, 2004).

Cautions should be taken when comparing between countries, since alcohol use and alcohol use pattern have a strong cultural variation. Nevertheless, these figures are of public health interest and with increasing globalization, drinking patterns tend to spread across countries (Patel, 2001; WHO, 2001a).

The prevalence of alcohol use and alcohol problems among men was many times higher than that of women. Also, men drank more heavily than did women. This is consistent with findings from studies in many countries (Janghorbani et al., 2003; Lapham et al., 1998; Mendoza-Sassi and Beria, 2003; Webb et al., 2005), but the gap between sexes in our setting is larger. For instance, Janghorbani et al. reported an odds ratio for alcohol use of 4.7 (CI: 3.8-5.6) in men compared to women (Janghorbani et al., 2003). Studies from many countries have discussed gender differences and a possible convergence in drinking patterns between men and women (Bongers et al., 1998; Demyttenaere et al., 2004; Nolen-Hoeksema, 2004; Room, 1996; Van Oers et al., 1999). In Vietnam, it seems obviously that men drank more and had more alcohol problems than did women. The social and cultural context positively supports for men's drinking but not for women's drinking. A review indicates that gender difference in drinking and alcohol problems have decreased in recent decades (Nolen-Hoeksema, 2004) . We have not yet any indication of this in Vietnam, although it is clear that with socioeconomic development, Vietnamese women play a more and more important role in society, and the reduced social gap between men and women would be a potential factor for the increasing prevalence of alcohol use and alcohol problems among women in the near future.

49

In accordance with the VNHS, we found that alcohol use increased with increasing age in the first three youngest age groups and then declined in the oldest age group (Ministry of Health and General Statistic Office, 2003). Although not statistically significant, the prevalence of alcohol problems was somewhat higher in older men; these findings concur with findings of studies from various other countries (Aalto et al., 1999; Janghorbani et al., 2003; Mendoza-Sassi and Beria, 2003; Webb et al., 2005).

5.5. Health problems in association with sociodemographic factors

It is well known that poor health is associated with low socioeconomic status. (Alem et al., 1999; Araya et al., 2001; Fernandez et al., 1999; Patel and Kleinman, 2003; Regidor et al., 1999; Stronks et al., 1998; Wagstaff, 2000). In transition Vietnam, the changes in social contexts have widened the gap between socioeconomic groups. Thus, health problems are expected to affect different social groups differently. Knowledge about this is important for organizing health system as well as planning health activities. In this thesis, we have used several measures of socioeconomic status: education, occupation, employment status, household economy, and marital status.

Education

We could only find a significant association between low education and self-reported illness, as well as between low education and mental distress among men (paper I and V). Helasoja et al. (2006) also reported higher rates of poor health in lower education group, the figure was especially statistically significant among men. This finding has been also pointed out in several studies in Spain (Regidor et al., 1999) and in Korea (Khang et al., 2004), etc. Regidor et al. postulated that although the higher educated women have better living conditions, they may suffer more stress at work due to the pressures of working life, the relationship with colleagues as well as a numbers of in-door illnesses such as tiredness and pain due to limited physical activities, etc. However, several studies have indicated that self-reported illness and mental distress decline with increasing educational level in both sexes (Alem et al., 1999; Araya et al., 2001; Good, ; Husain et al., 2000; Kebede et al., 1999; Khe et al., 2003;

50

Maziak et al., 2002; Patel and Kleinman, 2003; Rohrer et al., 2005; Strine et al., 2004; Wagstaff, 2000).

In paper IV, we found that women with higher education were more likely to have alcohol problems compared to those with lower education. A study in the USA pointed out that young persons with college educations had 1.5 times higher risk of alcohol problems compared to those with lower education (Horn et al., 2002). This also has been revealed by a study in Ukraine (Webb et al., 2005). In contrast, studies in Taipei and Rotterdam found a negative relationship between education level and alcohol problems (Chen et al., 2004; Van Oers et al., 1999), while a study in Hong Kong did not find any considerable differences between education groups regarding alcohol problems (Janghorbani et al., 2003). In our setting, there is a possibility that more highly educated women have more outside-the-home contacts that lead to a higher risk of drinking and of having alcohol problems.

Occupation and employment status

We did not find any difference between occupational groups in terms of self-reported illness, mental distress or alcohol problems. Fraser et al. in their review of 52 related studies have stated that they could not conclude that farmers and farming families experience higher rate of mental health problems in compared with non-farming community (Fraser et al., 2005). Thus, we have added one more study that supports for this finding.

We only found a higher rate of mental distress in men who had unstable employment. This might be explained by the fact that in rural Vietnam a woman seems to have less social pressures than a man does if she is unemployed or illiterate since the household economy is often considered to be the man's responsibility. In addition, unemployment and illiteracy is more likely to threaten a man's self-confidence than a woman.

Our findings are in agreement with findings from other studies that did not find any significant association between occupation and alcohol problems (Chen et al., 2004; Lapham et al., 1998; Van Oers et al., 1999). However, a study in the

USA reported a 1.4 times higher risk of having an AUDIT score greater than 7 among unemployed persons (Horn et al., 2002).

Economic status

The association between low economic status and ill health has been well documented (Basch, 1990; Beaglehole and Bonita, 1997; Fernandez et al., 1999; Gwatkin et al., 1999; Stronks et al., 1998; Wagstaff, 2000; Zere and McIntyre, 2003). However, we did not find any significant association between economic status and health problems (paper I, IV and V). One may argue that our classification of household economy is not sensitive enough. But, Khe et al. have shown that other economic classifications (based on income quintile; wealth index based on assets; housing conditions; and household expenditures) were not better in assessing household economic status in this setting (Khe et al., 2003). An explanation could be that the economic gap between groups in this setting is not large enough to show any disparity in self-reported illness, mental distress or alcohol problems between economic groups. Another possibility is that the poor may not report episodes of illness that occur so frequently that they consider it as a normal part of everyday existence. In fact, many studies from developing countries have found that richer groups report more ill health. Studies from Ghana, Jamaica, Peru and Bolivia found that the richest 20% of the population report more illnesses than the poorest 20% (Wagstaff, 2000).

In summary, we have not evidence for socioeconomic differences in self-reported illness, mental distress and alcohol problems among women. In Vietnam, Khe also found that the socio-economic difference in mortality and morbidity for women was unclear (Khe, 2004). This has also been shown in studies in Korea, Finland, Estonia, Latvia and Netherlands, as they found that the socioeconomic differentials in mortality and morbidity were smaller among women (Helasoja et al., 2006; Khang et al., 2004; Koskinen and Martelin, 1994). Koskinen and Martelin have agued that the conventional measures of socioeconomic status are inefficient in describing socioeconomic dimension among women. In our setting, it is a possibility that women were more homogenous in terms of occupation and the employment status than were men. Several women who were government staff still had to do farming to help their relatives during the harvest time. Furthermore, many male farmers had gone out

52

for temporary works but very few women had done that because of their main role in taking care of house works.

Marital status

Our study found that separated, widowed and divorced women were more likely to have alcohol problems than women in other groups (paper IV), while only indicated a higher rate of mental distress among this group of men (paper V). It seems that in a community where a woman has lower socioeconomic status, women often have to learn to adapt themselves to their circumstances, then they can adapt better than men when being separated, widowed or divorced.

Regarding alcohol use, a divorced, separated, or widowed woman can drink more freely when she is not under the control of her husband, his parents and relatives. It is socially acceptable for a man to be drunk every day, but he would never want his wife to drink. Studies in Ukraine, Hong Kong and Taiwan (Chen et al., 2004; Janghorbani et al., 2003; Webb et al., 2005) have indicated that marital status was not significantly associated with alcohol use and alcohol problems. In contrast to our study, the studies in Ukraine, Hong Kong, and Thailand reported lower rates of heavy drinking and alcohol problems in widowed, divorced and separated persons (Janghorbani et al., 2003; Lapham et al., 1998; Webb et al., 2005). Could cultural and social variation again be involved to explain this discrepancy?

5.6. Use of health services

We found a consistent pattern in use of health services in paper I and paper V. Our results showed that self-treatment was very common, and a large proportion of those with self-reported illness (paper I) and those with mental distress (paper V) used private services. On the other hand, public health services were rarely used. In total, there were about 10% persons with self-reported illness and 20% persons with mental distress who reported use of public health services, while the corresponding figures for the use of private services were 18-24% and 38%. These results are in line with the findings from other studies in Vietnam in terms of a large share of private sector in the total

number of health visits among those who reported illness (General Statistical Office of Vietnam, 1999; Ministry of Health and General Statistic Office, 2003; Ministry of Health of Vietnam and Health Policy Unit, 2002). Explanations that are attributable to the changes in social and policy context after the economic reform in 1986 have been made in several official reports (General Statistical Office of Vietnam, 1999; Ministry of Health of Vietnam, 2000; Ministry of Health of Vietnam and Health Policy Unit, 2002; World Bank, 2001). First, the legalization of private practices has lead to increasing number of private health providers, and to increasing drug sellers since drugs are widely sold without a prescription both in pharmacies and in the markets. Second, nowadays the CHS is not any more an attractive place for the persons who seek health services since they now have to pay when seeking health care at the CHS.

The similarity in pattern of use of health services in paper I and paper V is understandable since almost people with mental distress sought health care because of the occurrence of "somatic" symptoms rather than the occurrence of 'emotional" symptoms. People seem not to care about their emotional symptoms. Perhaps, they do not know that the occurrence of emotional symptoms may also reflect ill health.

Remarkably, only 5% of persons with mental distress sought health care at the places where mental health care is officially provided. While it seems that there is no comparable study in Vietnam, several studies across countries have raised an issue about the gap between the need for mental health care and the actual use of mental health services (Bijl et al., 2003; Demyttenaere et al., 2004; Kohn et al., 2004; Strine et al., 2004). For instance, a study in Chile found that 62% of the people with a psychiatric disorder did not receive mental health care (Saldivia et al., 2004). Jorm discussed public knowledge and beliefs and meant that "mental health literacy" is important since the recognition of mental disorders can influence mental health care seeking (Jorm, 2000). Furthermore, the stigmatization of people with mental illness may reduce the propensity to health care (Angermeyer and Dietrich, 2006; Ekeland and Bergem, 2006; Jamison, 2006). In our setting, there is also a possibility that people either did not recognize their problems as mental health problems or did not know that they get help if they seek care at a special mental health care service. Finally, there are some issues related to the current health system in this setting that

54

limit the use of mental health services among people with mental illness such as the lack of a community based mental health care in each commune, the inadequate capacity of private providers and staff at CHSs regarding diagnosis and treatment of mental illness.

6. CONCLUSIONS AND RECOMMENDATIONS

This thesis has provided additional understanding about self-reported illness, mental distress and alcohol problems in rural Vietnam. We believe our findings are relevant for other developing countries. Our findings point to a number of suggestions for public health measures.

Conclusions and recommendations for public health policy and action

- We confirmed the value of the SRQ-20 and the AUDIT for use in developing countries. The optimal cut-off limit has to be assessed and determined according to local conditions and different cut-off points could be used for different purposes. These two instruments could be used in primary health care settings as cost-effective methods for early detection of mental distress and alcohol problems. The instruments can also be used to collect and report data on mental health problems in epidemiological surveys and public health reports.

- The high level of alcohol problems among men across all socio-demographic groups underlines the need for intervention programs to reduce the burden of alcohol in society. The interventions would require policy measures as well as better competence and routines in the health care system.

- The prevalence of mental distress is low in our setting. However, the low rate of using health services among persons with mental distress again indicates a treatment gap in mental health care. Persons with mental distress more often sought health care because of "somatic" symptoms rather than "emotional" symptoms. Apart from making community mental health care services more available and accessible, actions should be taken to increase the awareness in the population about mental health problems.

- We confirmed a higher rate of self-reported illness and mental distress among women compared to men, as well as a stronger association between health problems and socio-economic factors among men. Education was an important predictor of reporting mental distress and general illness among men.

- The private sector was used to a larger extent than the public health services. To make the best use of public health services, efforts should be continued to improve the availability, accessibility and quality of the public health services, particularly mental health services. Interventions should also be made to build up capacity of private health services in providing health care. Monitoring the quality of private health services and reporting health information from the private health services are as important as they are for the public health services.

Future research

This thesis can serve as a background for further research in these areas. Future public health research should continue to monitor changes in health problems among different sociodemographic groups under the influences of other factors in society, such as culture, economy, education, environment, health policies and other policies. This work is particularly important in countries in transition.

Apart from developing new and better methods for detecting health problems in the community, continuing research should also focus on building up valuable technical guidance and protocols to effectively organize health services in order to meet the population's need for health care.

7. ACKNOWLEDGEMENTS

I would like to express my special gratitude to:

Professor Peter Allebeck, my main supervisor for broadening my scientific views and knowledge, for making me feel capable through continuous encouragement, and for always being available to listen and discuss. His brilliant guidance and well-organised arrangements have always kept my studies on track. I really admire his patience in going through my writings and correcting my English, even when he has been busy with hundreds of other things. What I have also learnt from him is how to treat students as a wonderful mentor. His warm house and special hospitality of Karin Gottvall, his wife, have made me feel at home whenever I have come to Sweden.

Professor Truong Viet Dzung, my supervisor for continuously directing and supporting me. His advice has always been valuable for my studies and my work.

Late professor Ton That Bach, the Ex-rector of Hanoi Medical University, who always saw things with a broad and brilliant view, for giving me the opportunity to be a research student in the Health Systems Research Project, for always supporting and encouraging his staff to study and develop themselves, and above all of that, for creating an important belief in a supportive working environment and in the human kindness from very first days of my working life; this has really been invaluable.

Associate Professor Nguyen Thi Kim Chuc, the coordinator of the Health Systems Research Project in Vietnam, for enabling my studies. Her support and encouragement during my PhD training have really helped.

Professor Vinod Diwan, for accepting me to be a research student in the Health Systems Research Project, for introducing me to my supervisor, whom I found

to be the best, and for his great support and encouragement. He always manages to do the right things in the right way.

Professor Nguyen Lan Viet, the Rector of Hanoi Medical University, Director of the Health Systems Research Project in Vietnam for his support to my study.

Dr. Nguyen Duy Luat and Dr. Nguyen Van Hien, for consistently being supportive, for creating a desirable working environment, for always looking forward and being tolerant and good leaders.

Dr. Fredrik Spak and Professor Gunnar Kullgren, whom I consider as my co-supervisors, for being co-authors on my papers, and for being available to discuss and giving well thought-out comments.

Dr. Hoang Van Minh and Dr. Nguyen Van Tuan, for helping me to plan my field studies and giving comments on my papers as co-authors and good collaborators.

Professor Hans Rosling and Professor Staffan Bergström for creating a great academic environment at IHCAR. I am privileged to be a student at IHCAR, Karolinska Institutet.

Ms. Anastasia Pharris, for always being available to help effectively, for unfailing encouragement and for help with English editing. Anna Thorson and Birgitta Linnaheimo, for their great support and encouragements.

Researchers at IHCAR and Social Medicine for academic brainstorming and encouragement: Dr. Karin Källander, Åsa Vernby, Dr. Birger Forsberg, Associate Professor Cecilia Stålsby-Lundborg, Associate Professor Eva Johansson, Associate Professor Bo Eriksson, Dr. Mattias Larsson, Dr. Anna-Berit Ransjö-Arvidson, Dr. Christina Dalman, Dr. Anders Norman.

Ms. Anna-Stina Ulrich, Ms Kersti Rådmark, Mr. Bo Planstedt, Mr. Lars Hedlund, and Mr. Thomas Mellin at IHCAR, and Gunmaria Löfberg at Social Medicine for their help.

Dr. Wang Xiangdong, from the Western Pacific Regional Office of the World Health Organisation for giving me the opportunity to enrich my knowledge in mental health. Professor Harry Minas, Professor Vikram Patel, and Professor Alex Cohen for giving encouragement and useful lectures in the Mental Health Leadership Training Program.

I dedicate this thesis to my mother, for the life, love and dedication she has given me, and for being excellent in the role of a "mother" to my son whenever I have had to be away from home. Also for her everlasting support and encouragement, and for always prioritising her daughters' needs above her own needs. Mom, without you I would not have come to this day.

My father, for always being proud of his daughters and for encouraging me to overcome difficulties. I have now seen that I have benefited from his efforts.

I am so happy having my sister and her husband as my best friends. Thank you for being with me at every difficult and happy moment, for continuously supporting and encouraging me.

Finally, I would like to express my deepest thanks and gratitude to all of those whom I did not mention by name for their support, encouragement and contributions.

8. REFERENCES

Aalto, M., Seppa, K., Kiianmaa, K. and Sillanaukee, P. (1999) Drinking habits and prevalence of heavy drinking among primary health care outpatients and general population. *Addiction* **94**, 1371-9.

Abdullah S. Al-subaie, F. K. M., MRCPsych;Tajuddin Al-Malik, Dip.Psych (1998) The arabic Self- repoting Questionnaire (SRQ) as a psychiatric screening instrument in medical patients. *Annals of Saudi Medicine,* **18**, 308-310.

AIIPsych online Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), http://allpsych.com/disorders/dsm.html, accessed April 12, 2006.

Alem, A., Kebede, D., Woldesemiat, G., Jacobsson, L. and Kullgren, G. (1999) The prevalence and socio-demographic correlates of mental distress in Butajira, Ethiopia. *Acta Psychiatr Scand Suppl* **397**, 48-55.

Allebeck, P. (1997) *Public Health reporting in some European countries. Sweden's Public Health Report.* National Board of Health and Welfare, Stockholm:.

Allecbeck, P. (1998) Public health reporting: for what and in what form? *Eur J Public Health* **8**, 272-273.

Almeida-Filho, N., Mari Jde, J., Coutinho, E., Franca, J. F., Fernandes, J., Andreoli, S. B. and Busnello, E. D. (1997) Brazilian multicentric study of psychiatric morbidity. Methodological features and prevalence estimates. *Br J Psychiatry* **171**, 524-9.

Angermeyer, M. C. and Dietrich, S. (2006) Public beliefs about and attitudes towards people with mental illness: a review of population studies. *Acta Psychiatr Scand* **113**, 163-79.

Araya, R., Rojas, G., Fritsch, R., Acuna, J. and Lewis, G. (2001) Common mental disorders in Santiago, Chile: prevalence and socio-demographic correlates. *Br J Psychiatry* **178**, 228-33.

Araya, R., Wynn, R. and Lewis, G. (1992) Comparison of two self administered psychiatric questionnaires (GHQ-12 and SRQ-20) in primary care in Chile. In *Soc Psychiatry Psychiatr Epidemiol*, Vol. 27, pp. 168-73.

Babor, T. F., John, C. H., Saunders, J. and Monteiro, M. G. (2001) *AUDIT- The Alcohol Use Disorders Identification Test- Guidelines for Use in Primary Care.* World Health Organisation, Department of Mental Health and Substance Dependence.

Babor, T. F. and John, C. H. B. (2001) *Brief Intervention for Hazardous and Harmful Drinking: A Manual for Use in primary Care*, Vol. WHO/MSD?MSB/01.6b. World Health organisation. Department of Mental Health and Substance Dependence, Geneva.

Basch, P. (1990) *Textbook of international health.* Oxford University Press.

Beaglehole, R. and Bonita, R. (1997) *Public Health at the crossroads.* Cambridge Graduate Press, Cambridge

Bergman, H. and Kallmen, H. (2002) Alcohol use among Swedes and a psychometric evaluation of the alcohol use disorders identification test. *Alcohol Alcohol* **37**, 245-51.

Bijl, R. V., de Graaf, R., Hiripi, E., Kessler, R. C., Kohn, R., Offord, D. R., Ustun, T. B., Vicente, B., Vollebergh, W. A., Walters, E. E. and Wittchen, H. U. (2003) The prevalence of treated and untreated mental disorders in five countries. *Health Aff (Millwood)* **22**, 122-33.

Binh, T. H. (2004) Study on depression in a commune in Hanoi (in Vietnamese). Paper presented at the National Conference: Taking care of psychiatric patient and suicide prevention Hue, 2004.

Bloomfield, K., Stockwell, T., Gmel, G. and Rehn, N. (2003) International comparisons of alcohol consumption. *Alcohol Res Health* **27**, 95-109.

Bongers, I. M., van de Goor, L. A., van Oers, J. A. and Garretsen, H. F. (1998) Gender differences in alcohol-related problems: controlling for drinking behaviour. *Addiction* **93**, 411-21.

Bostrom, G. and Persson, G. (2001) Chapter 2. The development and Distribution of Public Health. *Scandinavian Journal of Public Health* **29**, 17-36.

Bradley, K. A., Bush, K. R., McDonell, M. B., Malone, T. and Fihn, S. D. (1998) Screening for problem drinking: comparison of CAGE and AUDIT. Ambulatory Care Quality Improvement Project (ACQUIP). Alcohol Use Disorders Identification Test. *J Gen Intern Med* **13**, 379-88.

Byass, P. (2003) Patterns of mortality in Bavi, Vietnam, 1999-2001. *Scand J Public Health Suppl* **62**, 8-11.

Chen, C. H., Chen, W. J. and Cheng, A. T. (2004) Prevalence and identification of alcohol use disorders among nonpsychiatric inpatients in one general hospital. *Gen Hosp Psychiatry* **26**, 219-25.

Chen, C. H., Chen, W. J. and Cheng, A. T. (2005) New approach to the validity of the alcohol use disorders identification test: stratum-specific likelihood ratios analysis. *Alcohol Clin Exp Res* **29**, 602-8.

Chen, L. C. and Hiebert, L. G. (1994) *From socialism to private markets: Vietnam's health in rapid transition.*

Chow, J. C., Jaffee, K. and Snowden, L. (2003) Racial/ethnic disparities in the use of mental health services in poverty areas. *Am J Public Health* **93**, 792-7.

Chuc, N. T. and Diwan, V. (2003) FilaBavi, a demographic surveillance site, an epidemiological field laboratory in Vietnam. *Scand J Public Health Suppl* **62**, 3-7.

Commission on Behavioral and Social Sciences and Education (1993) The Epidemiological Transition: Policy and Planning Implications for Developing Countries.

http://darwin.nap.edu/books/0309048397/html/4.html; accessed March 20, 2006.

Commission on Behavioral and Social Sciences and Education (2001) Preparing for an Aging World: The Case for Cross-National Research (2001) http://www.nap.edu/openbook/0309074215/html/205.html, accessed 20 March, 2006.

Conigrave, K. M., Hall, W. D. and Saunders, J. B. (1995a) The AUDIT questionnaire: choosing a cut-off score. Alcohol Use Disorder Identification Test. *Addiction* **90**, 1349-56.

Conigrave, K. M., Saunders, J. B. and Reznik, R. B. (1995b) Predictive capacity of the AUDIT questionnaire for alcohol-related harm. *Addiction* **90**, 1479-85.

Cottler, L. B., Robins, L. N., Grant, B. F., Blaine, J., Towle, L. H., Wittchen, H. U. and Sartorius, N. (1991) The CIDI-core substance abuse and dependence questions: cross-cultural and nosological issues. The WHO/ADAMHA Field Trial. *Br J Psychiatry* **159**, 653-8.

Coulton, S., Drummond, C., James, D., Godfrey, C., Bland, J. M., Parrott, S. and Peters, T. (2006) Opportunistic screening for alcohol use disorders in primary care: comparative study. *Bmj* **332**, 511-7.

Daeppen, J. B., Yersin, B., Landry, U., Pecoud, A. and Decrey, H. (2000) Reliability and validity of the Alcohol Use Disorders Identification Test (AUDIT) imbedded within a general health risk screening questionnaire: results of a survey in 332 primary care patients. *Alcohol Clin Exp Res* **24**, 659-65.

Darlington RB Factor Analysis. http://comp9.psych.cornell.edu/darlington/-factor.htm. Vol. 2006.

Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, I., Kovess, V., Lepine, J. P., Angermeyer, M. C., Bernert, S., de Girolamo, G., Morosini, P., Polidori, G., Kikkawa, T., Kawakami, N., Ono, Y., Takeshima, T., Uda, H., Karam, E. G., Fayyad, J. A., Karam, A. N., Mneimneh, Z. N., Medina-Mora, M. E., Borges, G., Lara, C., de Graaf, R., Ormel, J., Gureje, O., Shen, Y., Huang, Y., Zhang, M., Alonso, J., Haro, J. M., Vilagut, G., Bromet, E. J., Gluzman, S., Webb, C., Kessler, R. C., Merikangas, K. R., Anthony, J. C., Von Korff, M. R., Wang, P. S., Brugha, T. S., Aguilar-Gaxiola, S., Lee, S., Heeringa, S., Pennell, B. E., Zaslavsky, A. M., Ustun, T. B. and Chatterji, S. (2004) Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *Jama* **291**, 2581-90.

Ekeland, T. J. and Bergem, R. (2006) The Negotiation of Identity among People with Mental Illness in Rural Communities. *Community Ment Health J*.

Epidemiologic Research & Information Center (ERIC) (2001) Epidemiology online- Eric note book. Vol. 2006, Durham, North Carolina.

Fernandez, E., Schiaffino, A., Rajmil, L., Badia, X. and Segura, A. (1999) Gender inequalities in health and health care services use in Catalonia (Spain). *J Epidemiol Community Health* **53**, 218-22.

Fiellin, D. A., Reid, M. C. and O'Connor, P. G. (2000) Screening for alcohol problems in primary care: a systematic review. *Arch Intern Med* **160**, 1977-89.

Fraser, C. E., Smith, K. B., Judd, F., Humphreys, J. S., Fragar, L. J. and Henderson, A. (2005) Farming and mental health problems and mental illness. *Int J Soc Psychiatry* **51**, 340-9.

Garcia, P. and McCarthy, M. (2000) *Measuring Health: A step in the development of city health profiles.* World Health Organization. Regional Office for Europe Copenhagen.

General Statistical Office of Vietnam (1993) *Vietnam Living Standard Survey, 1993.* Statistical Publishing House, Hanoi.

General Statistical Office of Vietnam (1999) *Vietnam Living Standard Survey, 1998.* Statistical Publishing House, Hanoi.

Ghubash, R., Daradkeh, T., El-Rufaie, O. F. and Abou-Saleh, M. T. (2001) A comparison of the validity of two psychiatric screening questionnaires: the Arabic General Health Questionnaire (AGHQ) and Self-Reporting Questionnaire (SRQ-20) in UAE, using Receiver Operating Characteristic (ROC) analysis. In *Eur Psychiatry*, Vol. 16, pp. 122-6.

Good, M.-J. D. V. Women and mental health. Vol. 2006. Women Watch.

Gordis, L. (2000) *Epidemiology.* W.B. Saunders Company- A Harcourt Health Sciences Company.

Gwatkin, D. R., Guillot, M. and Heuveline, P. (1999) The burden of disease among the global poor. *Lancet* **354**, 586-9.

Hajian-Tilaki, K. O., Hanley, J. A., Joseph, L. and Collet, J. P. (1997) A comparison of parametric and nonparametric approaches to ROC analysis of quantitative diagnostic tests. *Med Decis Making* **17**, 94-102.

Harding T.W, D. A. M. V., baltazar J, Climen C.E, Ibrahim H.H.A, Ladrido-Ignacio L., Srinivasa Murthy R. & Wig, N.N. (1980) mental disorders in primary health care: a study of their frequency and diagnosis in four developing countries. In *Psychological Medicines*, Vol. 10, pp. 231-241.

Harpham, T., Reichenheim, M., Oser, R., Thomas, E., Hamid, N., Jaswal, S., Ludermir, A. and Aidoo, M. (2003) *Measuring mental health in a cost-effective manner.*

Hasin, D. (2003) Classification of alcohol use disorders. *Alcohol Res Health* **27**, 5-17.

Helasoja, V., Lahelma, E., Prattala, R., Kasmel, A., Klumbiene, J. and Pudule, I. (2006) The sociodemographic patterning of health in Estonia, Latvia, Lithuania and Finland. *Eur J Public Health* **16**, 8-20.

Helman, C. G. (2001) *Culture, Health and Illness* 198 Madison Avenue, New York, NY 10016.

Horn, K., Leontieva, L., Williams, J. M., Furbee, P. M., Helmkamp, J. C. and Manley, W. G., 3rd (2002) Alcohol problems among young adult emergency department patients: making predictions using routine sociodemographic information. *J Crit Care* **17**, 212-20.

Husain, N., Creed, F. and Tomenson, B. (2000) Depression and social stress in Pakistan. *Psychol Med* **30**, 395-402.

Iacoponi, E. and Mari, J. J. (1989) Reliability and factor structure of the Portuguese version of Self-Reporting Questionnaire. *Int J Soc Psychiatry* **35**, 213-22.

Jamison, K. R. (2006) The many stigmas of mental illness. *Lancet* **367**, 533-4.

Janca, A., Kastrup, M. C., Katschnig, H., Lopez-Ibor, J. J., Mezzich, J. E. and Sartorius, N. (1996) The ICD-10 multiaxial system for use in adult psychiatry: structure and applications. *J Nerv Ment Dis* **184**, 191-2.

Janghorbani, M., Ho, S. Y., Lam, T. H. and Janus, E. D. (2003) Prevalence and correlates of alcohol use: a population-based study in Hong Kong. *Addiction* **98**, 215-24.

Jordanova, V., Wickramesinghe, C., Gerada, C. and Prince, M. (2004) Validation of two survey diagnostic interviews among primary care attendees: a comparison of CIS-R and CIDI with SCAN ICD-10 diagnostic categories. *Psychol Med* **34**, 1013-24.

Jorm, A. F. (2000) Mental health literacy. Public knowledge and beliefs about mental disorders. *Br J Psychiatry* **177**, 396-401.

Kebede, D., Alem, A. and Rashid, E. (1999) The prevalence and socio-demographic correlates of mental distress in Addis Ababa, Ethiopia. *Acta Psychiatr Scand Suppl* **397**, 5-10.

Khang, Y. H., Lynch, J. W., Yun, S. and Lee, S. I. (2004) Trends in socioeconomic health inequalities in Korea: use of mortality and morbidity measures. *J Epidemiol Community Health* **58**, 308-14.

Khe, N. D. (2004) Socioeconomic differences in a rural distrist in Vietnam: effects on health and use of health services. In *International Health, Department of Public Health Sciences*, Vol. PhD. Karolinska Institutet, Stockholm.

Khe, N. D., Eriksson, B., Phuong do, N., Hojer, B. and Diwan, V. K. (2003) Faces of poverty: sensitivity and specificity of economic classifications in rural Vietnam. *Scand J Public Health Suppl* **62**, 70-5.

Kind, P., Dolan, P., Gudex, C. and Williams, A. (1998) Variations in population health status: results from a United Kingdom national questionnaire survey. *Bmj* **316**, 736-41.

Kohn, R., Saxena, S., Levav, I. and Saraceno, B. (2004) The treatment gap in mental health care. *Bull World Health Organ* **82**, 858-66.

Kortmann, F. and ten Horn, S. (1988) Comprehension and motivation in responses to a psychiatric screening instrument. Validity of the SRQ in Ethiopia. *Br J Psychiatry* **153**, 95-101.

Koskinen, S. and Martelin, T. (1994) Why are socioeconomic mortality differences smaller among women than among men? *Soc Sci Med* **38**, 1385-96.

Lapham, S. C., Skipper, B. J., Brown, P., Chadbunchachai, W., Suriyawongpaisal, P. and Paisarnsilp, S. (1998) Prevalence of alcohol problems among emergency room patients in Thailand. *Addiction* **93**, 1231-9.

Leung, S. F. and Arthur, D. (2000) The alcohol use disorders identification test (AUDIT): validation of an instrument for enhancing nursing practice in Hong Kong. *Int J Nurs Stud* **37**, 57-64.

Macran, S., Weatherly, H. and Kind, P. (2003) Measuring population health: a comparison of three generic health status measures. *Med Care* **41**, 218-31.

MAPP (2006) MAPP Glossary, http://mapp.naccho.org/MAPP_Glossary.asp, accessed March 21, 2006.

Mari, J. J. and Williams, P. (1985) A comparison of the validity of two psychiatric screening questionnaires (GHQ-12 and SRQ-20) in Brazil, using Relative Operating Characteristic (ROC) analysis. In *Psychol Med*, Vol. 15, pp. 651-9.

Mari, J. J. and Williams, P. (1986a) Misclassification by psychiatric screening questionnaires. *J Chronic Dis* **39**, 371-8.

Mari, J. J. and Williams, P. (1986b) A validity study of a psychiatric screening questionnaire (SRQ-20) in primary care in the city of Sao Paulo. In *Br J Psychiatry*, Vol. 148, pp. 23-6.

Mathiowetz, N. A. (1999) Measurement Error in Surveys of the Low Income Population. Joint Program in Survey Methodology, National Academy of Science.

Maziak, W., Asfar, T., Mzayek, F., Fouad, F. M. and Kilzieh, N. (2002) Socio-demographic correlates of psychiatric morbidity among low-income women in Aleppo, Syria. *Soc Sci Med* **54**, 1419-27.

McDowell, I. and Newell, C. (1996) *Measuring Health: A Guide to Rating Scales and Questionnaires*. Oxford University Press, 198 Madison Avenue, New York, New York 10016.

Mendoza-Sassi, R. A. and Beria, J. U. (2003) Prevalence of alcohol use disorders and associated factors: a population-based study using AUDIT in southern Brazil. *Addiction* **98**, 799-804.

Ministry of Health and General Statistic Office (2003) *National Health Survey, 2001-02*. Hanoi Medical Publishing House, Hanoi.

Ministry of Health of Vietnam (2000) *Health economic reform oriented equity and effective*. Ministry of Health, Hanoi.

Ministry of Health of Vietnam (2002) *Vietnam Health Report 2002* Medical Publishing House, Hanoi.

Ministry of Health of Vietnam (2005) *HIV/AIDS Estimates and Projections 2005 - 2010.* General Department of Preventive Medicine and HIV/AIDS Control, Hanoi.

Ministry of Health of Vietnam (2006) Health statistics. http://www.moh.gov.vn/homebyt/vn/portal/InfoList.jsp?area=58&cat=1450; accessed date April 10, 2006.

Ministry of Health of Vietnam and Health Policy Unit (2002) *Health Care delivery and utilisation of health services in 28 rural communes during period of 2000-2001 (a sentinel survey).* Ministry of Health, Hanoi.

Murray and Lopez (1996) *The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projection to 2020.* Cambridge, Cambridge, MA.

Nghi, T. V. (2004) *Developing mental health care strategies in Vietnam. National Workshop on Mental Health Care and Suicide Prevention (In Vietnamese).* Ministry of Health of Vietnam, Hue.

Nghi, T. V., Siem, N. V., Thiem, N. V. and & Buoi, L. T. (2004) A clinical epidemiological study on depression in some communities. Paper presented at the National Conference: Taking care of psychiatric patients and suicide prevention, Hue, Vietnam, 2004.

NIAAA (1995) *Assessing Alcohol Problems- A guide for clinicians and researchers.Treatment Handbook.*

Nolen-Hoeksema, S. (2004) Gender differences in risk factors and consequences for alcohol use and problems. *Clin Psychol Rev* **24**, 981-1010.

Omran, A. R. (2001) The epidemiologic transition. A theory of the Epidemiology of population change. 1971. *Bull World Health Organ* **79**, 161-70.

Orley, J. W., J.K. (1979) Psychiatric disorders in two African villages. *Archives of General Psychiatry* **36**, 513-520.

Patel, V. (2001) Cultural factors and international epidemiology. *Br Med Bull* **57**, 33-45.

Patel, V. and Kleinman, A. (2003) Poverty and common mental disorders in developing countries. *Bull World Health Organ* **81**, 609-15.

Penayo, U., Kullgren, G. and Caldera, T. (1990) Mental disorders among primary health care patients in Nicaragua. *Acta Psychiatr Scand* **82**, 82-5.

Piccinelli, M., Tessari, E., Bortolomasi, M., Piasere, O., Semenzin, M., Garzotto, N. and Tansella, M. (1997) Efficacy of the alcohol use disorders identification test as a screening tool for hazardous alcohol intake and related disorders in primary care: a validity study. *Bmj* **314**, 420-4.

Regidor, E., Barrio, G., de la Fuente, L., Domingo, A., Rodriguez, C. and Alonso, J. (1999) Association between educational level and health related quality of life in Spanish adults. *J Epidemiol Community Health* **53**, 75-82.

Regier, D. A., Boyd, J. H., Burke, J. D., Jr., Rae, D. S., Myers, J. K., Kramer, M., Robins, L. N., George, L. K., Karno, M. and Locke, B. Z. (1988) One-

month prevalence of mental disorders in the United States. Based on five Epidemiologic Catchment Area sites. *Arch Gen Psychiatry* **45**, 977-86.

Rehm, J., Room, R., Graham, K., Monteiro, M., Gmel, G. and Sempos, C. T. (2003) The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease: an overview. *Addiction* **98**, 1209-28.

Reinert, D. F. and Allen, J. P. (2002) The Alcohol Use Disorders Identification Test (AUDIT): a review of recent research. *Alcohol Clin Exp Res* **26**, 272-9.

Rohrer, J. E., Borders, T. F. and Blanton, J. (2005) Rural residence is not a risk factor for frequent mental distress: a behavioral risk factor surveillance survey. *BMC Public Health* **5**, 46.

Room, R. (1996) Gender roles and interactions in drinking and drug use. *J Subst Abuse* **8**, 227-39.

Room, R., Babor, T. and Rehm, J. (2005) Alcohol and public health. *Lancet* **365**, 519-30.

Room, R., Janca, A., Bennett, L. A., Schmidt, L. and Sartorius, N. (1996) WHO cross-cultural applicability research on diagnosis and assessment of substance use disorders: an overview of methods and selected results. *Addiction* **91**, 199-220, discussion 221-30.

Ross, D. A. and Vaughan, J. P. (1986) Health interview surveys in developing countries: a methodological review. *Stud Fam Plann* **17**, 78-94.

Rumpf, H. J., Hapke, U., Meyer, C. and John, U. (2002) Screening for alcohol use disorders and at-risk drinking in the general population: psychometric performance of three questionnaires. *Alcohol Alcohol* **37**, 261-8.

Saldivia, S., Vicente, B., Kohn, R., Rioseco, P. and Torres, S. (2004) Use of mental health services in Chile. *Psychiatr Serv* **55**, 71-6.

Sartorius, N. and Janca, A. (1996) Psychiatric assessment instruments developed by the World Health Organization. In *Soc Psychiatry Psychiatr Epidemiol*, Vol. 31, pp. 55-69.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R. and Grant, M. (1993) Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. *Addiction* **88**, 791-804.

Skipsey, K., Burleson, J. A. and Kranzler, H. R. (1997) Utility of the AUDIT for identification of hazardous or harmful drinking in drug-dependent patients. *Drug Alcohol Depend* **45**, 157-63.

Strine, T. W., Balluz, L., Chapman, D. P., Moriarty, D. G., Owens, M. and Mokdad, A. H. (2004) Risk behaviors and healthcare coverage among adults by frequent mental distress status, 2001. *Am J Prev Med* **26**, 213-6.

Stronks, K., van de Mheen, H. D. and Mackenbach, J. P. (1998) A higher prevalence of health problems in low income groups: does it reflect relative deprivation? *J Epidemiol Community Health* **52**, 548-57.

Thiem, N. V. (2004) *Alcohol Abuse and Mental Health . National Workshop on Mental Health Care and Suicide Prevention (In Vietnamese).* Ministry of Health of Vietnam, Hue.

UNDP Vietnam (2005) Basic information of Vietnam. http://www.undp.org.vn/undp/fact/basev.htm, accessed date March 15, 2006.

Van Oers, J. A. M., Bongers, I. M. B., Van De Goor, L. A. M. and Garretsen, H. F. L. (1999) Alcohol consumption, alcohol- related problems, problems drinking, and socioeconomic status. *Alcohol & Alcoholism* **34**, 77-88.

Volk, R. J., Steinbauer, J. R., Cantor, S. B. and Holzer, C. E., 3rd (1997) The Alcohol Use Disorders Identification Test (AUDIT) as a screen for at-risk drinking in primary care patients of different racial/ethnic backgrounds. *Addiction* **92**, 197-206.

Wagstaff, A. (2000) *Research on Equity, Poverty and Health Outcomes- Lessons for the Developing World.* The International Bank for Reconstruction and Development. The World Bank, Washington, DC 20433.

Webb, C. P., Bromet, E. J., Gluzman, S., Tintle, N. L., Schwartz, J. E., Kostyuchenko, S. and Havenaar, J. M. (2005) Epidemiology of Heavy Alcohol Use in Ukraine: Findings from the World Mental Health Survey. *Alcohol Alcohol.*

Wells, J. E., Bushnell, J. A., Hornblow, A. R., Joyce, P. R. and Oakley-Browne, M. A. (1989) Christchurch Psychiatric Epidemiology Study, Part I: Methodology and lifetime prevalence for specific psychiatric disorders. *Aust N Z J Psychiatry* **23**, 315-26.

WHO (1994) *A user's guide to the Self Reporting Questionannire (SRQ).* World h´Health Organisation Geneva, Switzeland.

WHO (1997) Composite International Diagnostic Interview (CIDI). Core version 2.1.

WHO (1999) Making a difference. The World Health Report 1999. *Health Millions* **25**, 3-5.

WHO (2001a) *A summary of Global Status Report on Alcohol*, Report WHO/NCD/MDS/2001.2. Management of Substance Dependence. Noncommunicable Diseases, Geneva.

WHO (2001b) The way forward: WHO recommendations- World Health Report 2001, mental health.

WHO (2001c) *The World Health Report 2001- Mental Health: New Understanding, New Hope.* World Health Organisation, Geneva.

WHO (2002) *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*, Geneva.

WHO (2004) *Global Status Report on Alcohol 2004*. Department of Mental Health and Substance Abuse, Geneva.

WHO (2006) Countries health information profile- Vietnam. http://www.wpro.who.int/NR/rdonlyres/1A3D8138-D4AA-4CEB-B1A0-AC068F41D778/0/vtn.pdf. accessed date Prial 12, 2006.

WHO in the Western Pacific (2006) Vietnam: demographic, gender and poverty. World Health Organization.

World Bank (2001) *Vietnam - Growing Healthy-A Review of Viet Nam's Health Sector*, Report 22210.

World Bank (2006) Vietnam Data profile. http://devdata.worldbank.org/-external/CPProfile.asp?CCODE=VNM&PTYPE=CP; accessed date march 15, 2006.

Zere, E. and McIntyre, D. (2003) Equity in self-reported adult illness and use of health service in South Africa: inter-temporal comparison. *J Health Popul Nutr* **21**, 205-15.

9. APPENDICES

Appendix 1:   **Questionnaire used in paper I**
Household information (New household)

1. Name of HH head:	....	
2. Cluster number:	[ ] [ ] [ ] [ ] HH number: [ ] [ ]	
3. Name of interviewer	....	
4. Name of respondent	....	
5. Date of interview:	[ ] [ ] / [ ] [ ] /1999	

Interviewer's remarks ---------------------	Supervisor's remarks ---------------------
Signature of interviewer	Signature and name of supervisor

Stamp after 1st data entered:	
Form-page-Question	**Request**
Stamp after 2nd data entered:	

HH Nr. ☐☐☐☐☐ ☐☐☐☐

Individual information (New household)

Nr	Full name (Start with oldest)	Date of birth	Sex	Ethnicity	Religion	Occupation		Education	Marital status	Name of spouse	Name of father	Name of mother	Decision-maker in household
						Major	Minor						
1													
2													
3													
5													
6													
7													
	Enter crischial calendar only									If not available, write **X**			Mark with **X** for person who makes decisions for the household
	1=Male 2=Female								1=Married 2=Separated 3=Divorced 4=Widowed 5=Single				
	1=Kinh 2=Muong 3=Dao 4=Other (Specify)							MC=Illiterate DV=Read/write 1-12=Grade TC=Professional school DH=University					
	1=None 2=Catholic 3=Buddhist 4=Other (Specify)					1=Farmer 2=Gov. staff 3=Worker 4=Handicraft maker 5=Trading 6=Retired 7=Preschool 8=Pupil 9=Housewife 10=Jobless 11=Elderly 12=Other (Specify) 0=No minor occupation							

	Health events during the last 4 weeks								
12	During the last 4 weeks, is there anyone in your household got sick, accident or being injured?								
	- *Yes*	O 1 ☞ Continue							
	- *No*	O 2 ☞ Stop							
	If yes, please tell us **each illness episode** of **each person**								
		E 1	E 2	E 3	E 4	E 5	E 6	E 7	E 8
	Name of person								
	ID code								
13	Diseases /symptoms:								
	- *Cough*	1	1	1	1	1	1	1	1
	- *Fever*	2	2	2	2	2	2	2	2
	- *Difficult breathing*	3	3	3	3	3	3	3	3
	- *Headache*	4	4	4	4	4	4	4	4
	- *Colic*	5	5	5	5	5	5	5	5
	- *Digestive disorders*	6	6	6	6	6	6	6	6
	- *Bone and joint pain*	7	7	7	7	7	7	7	7
	- *Injury/accident*	8	8	8	8	8	8	8	8
	- *Hypertension*	9	9	9	9	9	9	9	9
	- *Cardiovascular disorders*	10	10	10	10	10	10	10	10
	-*Others*	11	11	11	11	11	11	11	11
14	Have ill person had any examination or used any kind of medicines since he/she got sick?								
	- *Yes*	1	1	1	1	1	1	1	1
	- *No* ☞ *Stop*	2	2	2	2	2	2	2	2
15	Where was the first place of visit to seek health care? (Select one only)								
	- *Self-treatment*	1	1	1	1	1	1	1	1
	- *Traditional healer*	2	2	2	2	2	2	2	2
	- *Private sector*	3	3	3	3	3	3	3	3
	- *CHS*	4	4	4	4	4	4	4	4
	- *DH/ policlinics*	5	5	5	5	5	5	5	5
	- *PH/CH*	6	6	6	6	6	6	6	6
	- *Others*	7	7	7	7	7	7	7	7
16	Up to now, which places ill persons has visited since she/he got sick?								
	- *Self-treatment*	1	1	1	1	1	1	1	1
	- *Traditional healer*	2	2	2	2	2	2	2	2
	- *Private sector*	3	3	3	3	3	3	3	3
	- *CHS*	4	4	4	4	4	4	4	4
	- *DH/ policlinics*	5	5	5	5	5	5	5	5
	- *PH/CH*	6	6	6	6	6	6	6	6
	- *Others*	7	7	7	7	7	7	7	7

Appendix 2: **THE AUDIT**
(Used to interview adults aged 18-60 years in Bavi district)

ADMINISTRATION

Date of interview: …/…/2003   Date of supervision:…/…/…

Name of interviewer:…   Name of supervisor………

Interviewer's observation: Supervisor's observation:

…………………………………   …………………………………

SECTION I: BACKGROUND INFORMATION

Commune:.................................   Cluster........HH Nr.....................

1. *Individual- ID number: ....*
2. *Age: .... Sex:*   1.Male   2. Female
3. *Marital status:*
   1. Currently married   3. Separated
   2. Widowed   4. Divorced
                                          5. Never married (single)

4. *If, you are married, do you currently live with you husband/wife?*
   1. Yes   2. No
5. *If you have children, how many children you have?..........................*
      (Don't count children who died)
6. *During the past 12 months, how many months have you been employed and got salary?* …………………………
7. *Currently, what is your occupation?:*

1. Farmer   2. Govert.   3. Worker   4. Artisan   5. Trading
                    staff
6. Retired   8. Pupil   9. Housewife   10. Jobless   11. Very old
12. Building   13. Doing services (hair   14. Other (specified)
worker   stylist, tailor, etc.)
8. *What level of education have you finished?:...............................(specified 10 or 12 years system)*
9. *What is your highest level of specialty:*
   1. No   2. Primary level   3.Secondary level
   4. University level   5. Higher

SECTION II: ALCOHOL USE AND ALCOHOL PROBLEMS

The Alcohol Use Disorders Identification Test: Interview Version

Appendix 3:   **Calculation of alcohol intake**

The number of standard drink is calculated based on the level of ethanol and the volume of glasses people used to drink.

Beer: almost at 5%	Standard drink	Liquor 30%	Standard drink
A can of beer 333	1	A Lipton glass 130 ml	2.5
A glass of beer 500 ml	1.6	A tea cup 80 ml	1.5
A Kodak glass 350 ml	1,1	A typical green tea leaf glass 200 ml	3.8
A typical green tea leaf glass 200ml	0,6	A small cup 40 ml	0.8
Wine 12 %		**Liquor 40%**	
A Lipton glass 130 ml	1	A Lipton glass 130 ml	3.3
A tea cup 80 ml	0,6	A tea cup 80 ml	2.0
A typical green tea leaf glass 200 ml	1.5	A typical green tea leaf glass 200 ml	5.0
A small cup 40 ml	0,3	A small cup 40 ml	1.0
Liquor 50%		**Liquor 50%**	
A Lipton glass 130 ml	4.1	A typical green tea leaf glass 200 ml	6.3
A tea cup 80 ml	2.5	A small cup 40 ml	1.3

1. A can of beer, 333 ml
2. A glass of beer, 500 ml
3. A medium glass, 350 ml
4. Green tea leaf glass, 200 ml
5. A Kodak glass, 350 ml
6. A Lipton glass, 130 ml
7. A tea cup, 80 ml
8. A small tea cup, 40ml
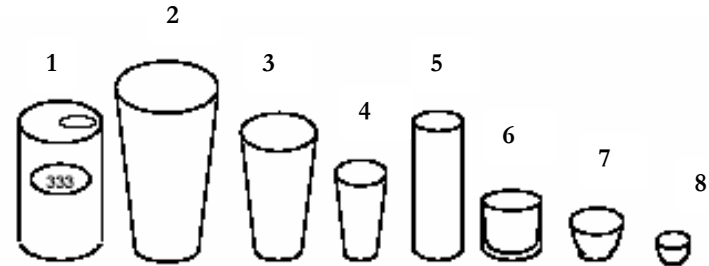
Appendix 4:   **THE SRQ**
       (Used to interview adults aged 18-60 years in Bavi district)

ADMINISTRATION

Date of interview: …/…/2003   Date of supervision:…/…/…

Name of interviewer:…   Name of supervisor………

Interviewer's observation: Supervisor's observation:

…………………………………   …………………………………

SECTION I: BACKGROUND INFORMATION

Commune:.................................   *Cluster........HH Nr....................*

1. *Individual- ID number: ....*
2. *Age:* .... Sex*:*   1.Male   2. Female
3. *Marital status:*
    1. Currently married   3. Separated
    2. Widowed   4. Divorced
                              5. Never married (single)

4. *If, you are married, do you currently live with you husband/wife?*
    1. Yes   2. No
5. *If you have children, how many children you have?..........................*
        (Don't count children who died)
6. *During the past 12 months, how many months have you been employed and got*
    salary? ………………………
7. *Currently, what is your occupation?*:

1. Farmer	2. Govert. staff	3. Worker	4. Artisan	5. Trading
6. Retired	8. Pupil	9. Housewife	10. Jobless	11. Very old
12. Building worker	13. Doing services (hair stylist, tailor, etc.)		14. Other (specified)	

8. *What level of education have you finished?:...............................(specified 10 or 12*
    years system)
9. *What is your highest level of specialty:*
    1. No   2. Primary level   3. Secondary
    4. University   5. Higher

SECTION II: MENTAL HEALTH

*The following questions are related to certain pains and problems, that may have bothered you the last **30 days**. If you think the question applies to you and you had the described problems in the last **30days**, answer YES. If not, answer NO.*

	Questions	Yes	No	If you have this problem, did you **seek help**?, If yes, **where** did you go? 0: No 1: Traditional healer 1. CHS 2. Private sector 3. DH/policlinic 4. PH/CH 6. Other(specified)
1	Do you have headache?			
2	Is your appetite poor?			
3	Do you sleep badly?			
4	Are you easily frightened?			
5	Do your hands shake?			
6	Do you feel nervous, tense or worried?			
7	Is your digestive poor?			
8	Do you have trouble thinking clearly?			
9	Do you feel unhappy?			
10	Do you cry more than usual?			
11	Do you find it difficult to enjoy your daily activities?			
12	Do you find it difficult to make decision?			
13	Is your daily work suffering?			
14	Are you unable to play a useful part in life?			
15	Have you lost interest in things?			
16	Do you feel that you are a worthless person?			
17	Has the thought of ending your life been in your mind?			
18	Do you feel tired all the time?			
19	Do you have uncomfortable feelings in your stomach?			
20	Are you easily tired?			