FACTORS INFLUENCING QUALITY OF LIFE AMONG HIV-INFECTED/ AIDS PATIENTS AT COMMUNITY HOSPITALS IN NAKHON RATCHASIMA PROVINCE

Miss Hathairat Khotsomphong

A Thesis Submitted in Partial Fulfillment of the Requirements
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ปัจจัยที่ส่งผลต่อคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่รับการรักษาที่โรงพยาบาลชุมชน จังหวัดนครราชสีมา

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คณะเภสัชศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
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Thesis Title	FACTORS INFLUENCING QUALITY OF LIFE AMONG HIV-INFECTED/AIDS PATIENTS AT COMMUNITY HOSPITALS IN NAKHON RATCHASIMA PROVINCE
By	Miss Hathairat Khotsomphong
Field of Study	Social and Administrative Pharmacy
Thesis Advisor	Associate Professor Vithaya Kulsomboon, Ph.D.
Thesis Co-Advisor	Yupapun Munkratok, Ph.D.

Accepted by the Faculty of Pharmaceutical Sciences, Chulalongkorn University in Partial Fulfillment of the Requirements for the Master's Degree

Pintip Pongpech ..... Dean of the Faculty of Pharmaceutical Sciences

(Associate Professor Pintip Pongpech, Ph.D.)

THESIS COMMITTEE

S. Thanaviriyakul ..... Chairman

(Associate Professor Sathitpong Tanaviriyakul)

Vithaya Kul ..... Thesis Advisor

(Associate Professor Vithaya Kulsomboon, Ph.D.)

Yupapun Munkratok ..... Thesis Co-Advisor

(Yupapun Munkratok, Ph.D.)

Phantipa Sakthong ..... Examiner

(Assistant Professor Phantipa Sakthong, Ph.D.)

Pakwimon Subhaluksuksakorn ..... External Examiner

(Assistant Professor Pakwimon Subhaluksuksakorn, M.D.)

หทัยรัตน์ โคตรสมพงษ์ : ปัจจัยที่ส่งผลต่อคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่รับการรักษาที่โรงพยาบาลชุมชน จังหวัดนครราชสีมา.(FACTORS INFLUENCING QUALITY OF LIFE AMONG HIV-INFECTED/AIDS PATIENTS AT COMMUNITY HOSPITALS IN NAKHON RATCHASIMA PROVINCE) อ.ที่ปรึกษาวิทยานิพนธ์หลัก : รศ.ภก.ดร.วิทยา กุลสมบูรณ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม : ภญ.ดร.ยุภาพรรณ มันกระโทก, 157 หน้า

การศึกษานี้มีวัตถุประสงค์เพื่อวัดระดับคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ และเพื่อพิจารณาปัจจัยที่ส่งผลต่อคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่รับการรักษาที่โรงพยาบาลชุมชน จังหวัดนครราชสีมา โดยการศึกษาวิจัยเชิงบรรยายแบบภาคตัดขวาง เครื่องมือที่ใช้เก็บข้อมูลเป็นแบบสอบถามด้วยตนเอง จากผู้ป่วยนอกที่มารักษาที่คลินิกผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ของโรงพยาบาลชุมชน จำนวน 24 แห่งในจังหวัดนครราชสีมา ทำการเก็บข้อมูลระหว่างวันที่ 1 มีนาคม ถึง 31 มีนาคม 2553 จากผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่ได้รับการรักษาด้วยยาต้านไวรัสเอดส์จำนวน 360 ราย อายุตั้งแต่ 23-44 ปี สามารถอ่านเขียนภาษาไทยได้ และมารับการรักษาที่คลินิกอย่างต่อเนื่องเป็นเวลาอย่างน้อย 3 เดือน เครื่องมือมีลักษณะคำถามแบบเลือกตอบประกอบด้วยแบบวัด 5 ส่วน ได้แก่ แบบวัดความร่วมมือในการกินยา(α=0.86) แบบวัดอาการที่สัมพันธ์กับเอชไอวีในด้านความถี่และความรุนแรง(α=0.89) แบบวัดพฤติกรรมการดูแลตนเอง(α=0.80) แบบวัดแรงสนับสนุนทางสังคม(α=0.84) และแบบวัดคุณภาพชีวิตขององค์การอนามัยโลกชุดย่อ ฉบับภาษาไทย(WHOQOL-BREF-THAI)(α=0.87) ที่มี 4 องค์ประกอบ ได้แก่ สุขภาพร่างกาย จิตใจอารมณ์ ความสัมพันธ์ทางสังคม และสิ่งแวดล้อม พร้อมกับทำการวิเคราะห์ปัจจัยที่มีความสัมพันธ์กับคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ทั้ง 4 ปัจจัย ได้แก่ ลักษณะทางสังคมประชากรศาสตร์ ปัจจัยด้านสุขภาพและการรักษา พฤติกรรมการดูแลตนเอง และแรงสนับสนุนทางสังคม โดยใช้การวิเคราะห์สมการถดถอยพหุคูณ จากผลการศึกษาพบว่าผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่รับการรักษาที่โรงพยาบาลชุมชน จังหวัดนครราชสีมา มีคุณภาพชีวิตในระดับปานกลาง และพบความสัมพันธ์กันอย่างมีนัยสำคัญทางสถิติระหว่างตัวแปรต้นทั้ง 4 ปัจจัย กับคะแนนคุณภาพชีวิตโดยรวมซึ่งเป็นตัวแปรตาม(r=0.607,p=0.000) โดยร้อยละ 36.8 ของความแปรปรวนในตัวแปรตามอธิบายได้ด้วยความแปรปรวนในตัวแปรต้น พบว่า คะแนนแรงสนับสนุนทางสังคมมีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติมากที่สุดกับคะแนนคุณภาพชีวิตโดยรวมในทิศทางบวก(β=0.387,p<0.01) และคะแนนพฤติกรรมการดูแลตนเองมีความสัมพันธ์ทางบวกกับคะแนนคุณภาพชีวิตโดยรวมอย่างมีนัยสำคัญทางสถิติ(β=0.100,p<0.05) และพบว่าคะแนนรวมของอาการที่สัมพันธ์กับเอชไอวี, การไม่มีทั้งศูนย์องค์รวมและกลุ่มผู้ติดเชื้อในโรงพยาบาล และสถานภาพหม้าย/หย่า/แยก มีความสัมพันธ์ทางลบกับคะแนนคุณภาพชีวิตโดยรวมอย่างมีนัยสำคัญทางสถิติ(β=-0.226,-0.134,-0.097 ด้วยค่า p<0.01,p<0.01,p<0.05)ตามลำดับ ผลการศึกษาแสดงถึงภาพรวมของผลลัพธ์การให้บริการดูแลรักษาผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ที่รับการรักษาที่โรงพยาบาลชุมชน จังหวัดนครราชสีมา และปัจจัยที่ส่งผลต่อคุณภาพชีวิต ซึ่งสามารถนำไปสู่การพัฒนาระบบบริการเพื่อส่งเสริมปัจจัยสนับสนุนให้ผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์มีคุณภาพชีวิตที่ดียิ่งขึ้น

ภาควิชา.....เภสัชศาสตร์สังคมและบริหาร..... ลายมือชื่อนิสิต.....หทัยรัตน์ โคตรสมพงษ์.....

สาขาวิชา.....เภสัชศาสตร์สังคมและบริหาร..... ลายมือชื่ออ.ที่ปรึกษาวิทยานิพนธ์หลัก.....

ปีการศึกษา.....2552..... ลายมือชื่ออ.ที่ปรึกษาวิทยานิพนธ์ร่วม.....

5176857633 : MAJOR SOCIAL AND ADMINISTRATIVE PHARMACY
KEYWORDS: QUALITY OF LIFE / HIV-INFECTED/AIDS PATIENTS / COMMUNITY HOSPITALS

HATHAIRAT KHOTSOMPHONG: FACTORS INFLUENCING QUALITY OF LIFE AMONG HIV- INFECTED/AIDS PATIENTS AT COMMUNITY HOSPITALS IN NAKHON RATCHASIMA PROVINCE. THESIS ADVISOR: ASSOC. PROF. VITHAYA KULSOMBOON, Ph.D., THESIS CO-ADVISOR: YUPAPUN MUNKRATOK, Ph.D., 157 pp.

The objectives of this study were to measure quality of life (QOL) among HIV-infected/AIDS patients and to examine factors influencing the QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province. A cross-sectional descriptive was performed by using self-reporting questionnaire. All patients were outpatients who visited HIV/AIDS clinic of 24 community hospitals in Nakhon Ratchasima province. Data were collected during March 1, 2010 to March 31, 2010 from 360 HIV-infected/AIDS patients receiving antiretroviral therapy. Their age ranged from 23-44 years old and were able to write and read Thai. The patients had received health care service from the HIV/AIDS clinic for at least three months continuously. The questionnaire had five components including Simplified Medication Adherence Questionnaire(SMAQ)(α=0.86), HIV-related symptoms questionnaire(α=0.89), Self-care behavior questionnaire(α=0.80), Social support questionnaire(α=0.84), and WHOQOL-BREF-THAI(α=0.87) which was the QOL measurement. QOL measurement was classified into four domains including physical domain, psychological domain, social relationships domain and environmental domain. Patient socio-demographics, health and treatment, self-care behavior and social support were factors that were explored the association with patients QOL by using Multiple Regression Analysis (MRA).

The results showed that the total QOL score of HIV-infected/AIDS patients was moderate level. There were a significant relationship between at least one variable in patient socio-demographics, health and treatment, self-care behavior and social support with the total QOL score in this model (r=0.607,p=0.000). The variance within the predictors could explain 36.8% of variance within the total QOL score. The social support overall score had significantly largest positive correlation with total QOL score (β=0.387,p<0.01). Self-care behavior overall score had significantly positive correlation with total QOL score (β=0.100,p<0.05). It was also found that HIV-related symptoms score, hospital non-participated holistic care center and non-club at HIV/AIDS clinic and widowed/divorced/separated had significantly negative correlation with total QOL score (β= -0.226,-0.134,-0.097 with p<0.01,p<0.01,p<0.05), respectively.

The results presented the QOL of HIV-infected/AIDS patients receiving antiretroviral therapy at community hospitals in Nakhon Ratchasima province and its influencing factors. The results could be used for health care service development to promote supportive factors in order to improve better QOL for the patients.

Department: Social and Administrative Pharmacy..... Student's Signature: Hathairat Khotsomphong

Field of Study: Social and Administrative Pharmacy.. Advisor's Signature: Vithaya Kulsomboon

Academic Year: 2009..... Co-Advisor's Signature: Yupapun Munkratok

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CONTENTS

Page

Page

Page

LIST OF TABLES

Page

Page

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

ADR	Adverse Drug Reaction
AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral therapy
ARV	Antiretroviral drug
ATC	Access to Care
CCC	Comprehensive and Continuum Care
CSMBS	Civil Servant Medical Benefit Scheme
DCC	Day care center
DHHS	Department of Health and Human Services
GPO	Government Pharmaceutical Organization
HAART	Highly Active Anti-Retroviral Therapy
HIV	Human Immunodeficiency Virus
HRQOL	Health-related quality of life
MOPH	Ministry of Public health
NAPHA	National Access to Antiretroviral Program for People Living with HIV/AIDS
NGOs	Non-Governmental Organizations
NHSO	National Health Security Organizations
OI	Opportunistic Infection
PLWHA	People Living with HIV/AIDS
QOL	Quality of life
UC	Universal Health Coverage Scheme
SMAQ	Simplified Medication Adherence Questionnaire
SSS	Social Security Scheme

CHAPTER I
INTRODUCTION

1.1 Rationale and Background

The Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) is the most devastating disease to ever face humankind. The United Nation and the World Health Organization estimated that currently 35 million people are living with HIV/AIDS (PLWHA) and more than 25 million people have died of HIV-related causes worldwide (UNAIDS/WHO, 2009). PLWHA confronted four causally interrelated problems in their struggle to survive with HIV/AIDS: physical, psychoemotional, economic, and sociocultural (Areewan Klunklin, and Jennifer Greenwood, 2005). Presently, Advances in drug therapy have led life-saving antiretroviral (ARV) drugs or Highly Active Anti-Retroviral Therapy (HAART) has practically reduced morbidity and mortality due to HIV/AIDS from a deadly disease to a manageable chronic illness. The goals in managing chronic illnesses are to maintain the highest possible level of functioning, promote independence in self-care and enhance QOL (WHO, 2009).

HIV/AIDS epidemic in Thailand has affected all sectors of Thai society. The first case of HIV/AIDS in Thailand was reported in September 1984 (Praphan Phanuphak, Chaichon Locharernkul, and Wilde, H., 1985). As of September 2009, 357,407 HIV/AIDS cases had been reported, 21,993 new cases and 95,793 deaths due to HIV/AIDS and of whom 75 % were in the age group 20-44 years. There were 65 % labor/worker and agricultural groups (Epidemiological office, Ministry of Public Health [MOPH], 2009). It has also reduced the size and impaired the quality of the labor force, undermining the long-term competitiveness of the country. HIV/AIDS, then, has direct consequences for the country's macro-economic development.

Nakhon Ratchasima, also known as Korat is the biggest northeast region of Thailand and the center of Northeastern communication and economics, it might be called the "gate way to the Northeastern part (E-san)". Four-fifth of the population lived in rural areas. The population of Nakhon Ratchasima is 2,579,286 living distributedly in 32 Districts (Nakhon Ratchasima province, 2009). The report of

accumulation of HIV/AIDS by government and private health care from 1984 to 30th September 2009 presented that there were 8,205 PLWHA and 1,483 death cases, 6,835 (83%) of HIV/AIDS cases at community hospitals (Nakhon Ratchasima Provincial Health Office, 2009). The morbidity rate is equal to 8.2/100,000 population. There were 213 new cases of HIV/AIDS reported in 2009. Like the country pattern, there was similar distribution of HIV/AIDS in age and occupational group (Epidemiological office, Ministry of Public Health [MOPH], 2009). HIV/AIDS assessing quality of care in Nakhon Ratchasima province by HIVQUAL-T 2007 showed that, only 6 from 26 hospitals updated and completed data which covered all 7 indicators. 37.4% of 262 patients had CD4 counts monitored once a year, 43.5% of them had CD4 counts checked at least twice a year, 1.91% patients had viral load monitored once a year. For OI prophylaxis, 95% of patients received PCP prophylaxis and 83% of patients received Cryptococcosis prophylaxis. None of them received MAC prophylaxis. All patients with TB received TB treatment but none of them had a PPD skin test during the study. Only 6.49% of patients had a VDRL test for syphilis screening and 10.87% of female HIV/AIDS patients received PAP smear screening (Khanidtha Wanleepong, 2008).

QOL of 110 HIV-infected/AIDS patients who visited Doi Saket Hospital, Chiang Mai by purposive sampling, using Ferrans (1997) was at high level. 66.36% of subjects were members of HIV/AIDS clinic (87.50% participated holistic care activities). All had received ARV and 90.90% of them had been infected less than 5 years and were in asymptomatic stage, 68.18% healthy and be able to work, 62.67% graduated of primary school level, 44.45% have sufficient income, 84.55% received family support and 51.82% received money support about 500 baht/month (15USD). The study found that 58.18% were female (Surankrat Surongkaborpitra, Warunee Fongkaew, and Pikul Nantachaipun, 2003). In addition, the QOL about the self-care behavior in female was higher than male (Suwanna Boonyaleepan, et al., 1999).

QOL of 381 HIV-infected/AIDS patients in Bangkok, using WHOQOL-BREF was found that level of QOL was moderate. It was found that QOL was positively related to QOL to age, family relationships, the self-care abilities and duration of exposed to the family. This has implication for health care system in planning and management for a better QOL by highlighting the desirability of improving self

occupation, self income, self-care and disclosure to patient's families (Pimsurang Taechaboonsermsak, Chockchai Munsawaengsub, Sirithai Charupoonphol, and Phitaya Charupoonphol, 2008).

The principles of comprehensive care of HIV/AIDS patients are holistic care in which clinical care, psychological support, socioeconomic support, involvement of PLWHA, their families as well as respect for human rights and legal needs. The QOL of 130 HIV-infected and AIDS patients under the Comprehensive and Continuum Care Program (CCC program) in the lower Southern Region in Thailand from 7 community hospitals by purposively sampling, using WHOQOL-HIV was found that the total of QOL level was moderate. Regarding to the relationship between received service level, severity level and QOL, it was found that receiving HIV care service had a significant positive correlation with QOL. The findings of this study suggest that providing service under the CCC Program could assist or promote the QOL of PLWHA (Natchaya Sonkhum, Praneet Songwathana, and Kittikorn Nilmanat, 2008).

Evaluation of National Access to Antiretroviral Program for People Living with HIV/AIDS (NAPHA) in Kanchanaburi province (2004-2006),Thailand, in addition, medical records of 210 patients were reviewed and indicated that 99.5 % had increased of CD4 levels and the OI in HIV-infected cases went down 50.5%. NAPHA project can be effective and promote QOL among PLWHA. More governmental support was needed in order to expand the service to HIV/AIDS patients (Lalida Charnond, 2006). Similar result about the relationship between self-care, social support, bio-markers, and QOL among PLWHA receiving ART had shown in the NAPHA project, Bamrasnaradura Infection Disease Institute, Nontaburi province. Self-care, CD4 cells count and social support had a significantly positive relationship with the QOL. It was also found that self-care had a significantly positive relationship with social support (Chutiwan Jankami, 2007).

There are many factors influencing QOL of HIV-infected/AIDS patients including socio-demographic characteristic, health and treatment, self-care behavior and social support. Socio-demographic is a general factor which may influence QOL in HIV-infected/AIDS patients such as, age, gender, marital status, education level, occupation, family income and disclosure HIV status. Health and Treatment such as, duration of HIV infection, duration of ART, current CD4 cell count, presence of OI or

comorbidity, adherence and HIV-related symptoms are also general factors which may influence QOL. Although there were many studies about QOL of HIV-infected/AIDS, it was still lack of study in Nakhon Ratchasima or investigating patient participation in HIV/AIDS clinic and hospital activity in holistic care service. According to previous studies, there were the association between QOL and self-care behavior or social support but only few studies in community hospitals in Thailand had examined in these issues. Consequently, the main purpose of this study will measure and examine the factors influencing QOL among HIV-infected/AIDS patients registered with the community hospitals, Nakhon Ratchasima province. The data collection will be emphasized the dimension about the QOL promotion of HIV-infected/AIDS patients, especially the ways to seek the collaboration network needed to solve the problem together.

1.2 Research Questions

RQ1: What are the total QOL score among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province?

RQ2: What are the factors influencing QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province?

1.3 Research Objectives

(1) To measure quality of life (QOL) among HIV-infected/AIDS patients receiving antiretroviral therapy using WHOQOL-BREF-THAI

(2) To examine factors influencing the QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province

1.4 Research Hypotheses

(1) Self-care behavior is positively correlated with QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province.

(2) Social support is positively correlated with QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province.

1.5 Expected Benefits

(1) To help healthcare team to develop holistic care plan in order to improve better QOL for the patients.

(2) The result of this study concerning QOL outcome can be used in the evaluation of quality of service for public policy decisions and the development of strategic healthcare plans.

(3) To enable the healthcare providers to participate in holistic care and to improve the provincial holistic care network.

(4) The results can be used for the allocation of healthcare resources focusing on self-care behavior to improve the QOL among HIV-infected/AIDS patients.

1.6 Scope of the study

This research studied the factors which influence QOL among HIV-infected/AIDS patients, including socio-demographic characteristic, health and treatment, self-care behavior and social support. This study was conducted in 360 HIV-infected/AIDS patients receiving antiretroviral therapy (ART) from HIV/AIDS clinics of the Outpatient Department of each community hospital, Nakhon Ratchasima province of Thailand from March 1, 2010 to March 31, 2010.

1.7 Definition of Terms

A. HIV-infected/AIDS patients refer to patients aged 20-44 years with HIV positive (HIV+) blood test and had evidence of HIV infection diagnosis in their medical record form. Also, the patients had received ART, HIV/AIDS care and treatment from HIV/AIDS clinics of the Outpatient Department in community hospitals, Nakhon Ratchasima.

B. Quality of life (QOL) is used in healthcare to refer to an individual's perception of self-satisfaction of the HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province toward physical and psychological condition, social relationship and environment on the basis of their culture, value and life goals. In this study, QOL was assessed with the 26 items of WHOQOL-BREF-THAI questionnaire. The WHOQOL-BREF is an easy-to-use instrument which had been developed by the World Health Organization WHO (WHOQOL, 1995),

translated into Thai by the Department of Mental Health (Suwat Mahatnirunkul, Wirawan Tuntipivatanakul, and Wanida Pumpisanchai, 1998) and validated in HIV/AIDS patients in Thailand (Phantipa Sakthong, Schommer, J., Gross, C., Rungpetch Sakulbumrungasil, and Wisit Prasithsirikul, 2007).

C. <u>Factors influencing QOL</u> included socio-demographic characteristic, health and treatment, self-care behavior and social support.

- **Socio-demographic characteristics** that affect QOL are age, gender, marital status, education level, occupation, family income and disclosure HIV status. The data were obtained from self-reported of patients.
  - **Age** refers to the patients's full years in age.
  - **Gender** refers to the sex of patients with HIV-infected/AIDS, comprising male and female.
  - **Marital status** refers to current marital status of the patients with HIV-infected/AIDS, categorized into couples and stay together, couples but no stay together, single and widowed/ divorced/separated.
  - **Education level** refers to the highest educational attainment. Educational level categorized into illiterate, primary education, initial secondary education, end secondary education, college diploma/high vocational diploma and bachelor degree.
  - **Occupation** refers to position, duty and responsibilities of subjects if they can perform the tasks normally, less than normal or unable to perform tasks. Occupation categorized into agriculturist, business owner, private company, government officer, wage earner or laborer and unemployed.
  - **Family income** refers to monthly income from the family of HIV-infected/AIDS patient. It also refers to the money received from other sources on a regular monthly basis.

- **Disclosure HIV status** refers to the individual's openness about his/her HIV status to the all members of family.

- **Health and Treatment** related to QOL among HIV-infected/AIDS patients are duration of HIV infection, duration of ART, current CD4 cell count, presence of OI or comorbidity, adherence, HIV-related symptoms, patient participation in HIV/AIDS clinic and hospital activity in holistic care service.
  - **Duration of HIV infection** refers to the duration since the patients were diagnosed with "HIV infection" to the full year of the data collection. These data had been obtained from the medical record form.
  - **Duration of ART** refers to the duration that PLWHA had received antiretroviral therapy. The data had been obtained from the medical record form.
  - **Current CD4 cell count** is the CD4 cell count of HIV-infected/AIDS patients as recorded at the present time of data collection. This data had been obtained from the medical record form.
  - **Presence of OI or comorbidity** refers to the current of OI or other chronic diseases of HIV-infected/AIDS patients as recorded at the present time of data collection. This data had been obtained from the medical record form.
  - **Adherence** means the act or quality of sticking to something; steady devotion; the act of adhering. Adherence is the best achieved through a collaborative process that facilitates acceptance and integration of medication regimen into an individual's daily life (Bartlett et al., 2000). In this study, the adherence information was obtained from self-reported of patients with the Simplified Medication Adherence

Questionnaire (SMAQ), a six-point questionnaire. The percentage of the score was calculated following the study of Knobel, et al. (2002).

- **HIV-related symptoms** means any sign and symptoms or illness. It is related to progression of the disease in the past 2 weeks which caused any problems to the patients such as fever, fatigue, headache, paresthesia, imbalance, skin problems, sleep disturbance, memory loss, sadness, cough or cold, diarrhea, nausea, swallowing difficulty, shortness of breath, impaired vision, loss of appetite, weight loss, oral thrush, hair loss and sexual dysfunction. The score was calculated from the HIV-related symptoms self-reported questionnaire**.**

- **Patient participation in HIV/AIDS clinic** refers to the participation of HIV-infected/AIDS patients in HIV/AIDS clinic activities categorized into receiving drug only, patient member (joined group of health education but no home visited), patient member and home visited, and patient leader. This data had been obtained from documentation of HIV/AIDS clinic.

- **Hospital activity in holistic care service** refers to the hospital which services in three main areas including HIV treatment, PLWHA capacity-building and community involvement. The objective of holistic care services is to assess physical, mental health, self-care capacity, and PLWHA capacity for community involvement after attending HIV/AIDS clinic activities. This data had been obtained from documentation of HIV/AIDS clinic. The hospital activity in holistic care service is divided into hospital participated in holistic care center, hospital non-participated in holistic care center but have club of patients, and hospital non-participated in holistic care center and non-club of patients in HIV/AIDS clinic. Nakhon Ratchasima have 27

community hospitals, only 19 hospitals had participated holistic care center including Soeng Sang, Kham Sakaesang, Kham Thale Sor, Nong Bunmak, Chock Chai, Non Daeng, Huai Thalaeng, Khon Buri, Non Thai, Non Sung, Pak Thong Chai, Chum Phuang, Prathai, Chakkarat, Dan Khun Thot, Phimai, Sung Noen, Sikhio and Pak Chong nana, the other 8 community hospitals did not participated.

- **Self–care behavior** means activities or daily life habits that the HIV-infected/AIDS patients do and personally initiate and perform for themselves to maintain life, health, and well-being by prevention, alleviation, cure, or control of unwanted conditions or complications. This also includes the seeking of and participation in medical care. In this study it refers to the scores derived from the self-care behavior questionnaire which was developed by Damri Tariya (2006) based on Orem's self-care theory (Orem, D.E., 1991). The questionnaire has 30 items of self-reported of Likert's type with a four points rating scales from regularly, often, rarely and never practices. The high score was good self-care behavior. Self-care behavior inventory for HIV-infected/AIDS patients have three dimension as followings;
  - **Universal self-care behavior** means the behavior or the performance of HIV-infected/AIDS patients. For example, drinking sufficient water, staying in the place with clean air, eating nutritious diet, having normal elimination and excrement, taking care of personal hygiene, avoidance of smoking or alcoholic use, balancing between activity and rest and balancing between solitude and social interaction.
  - **Developmental self-care behavior** means to behave or perform the activities in accordance with the changes in development, and to acknowledge changes in the life situation.
  - **Health deviation self-care behavior** means that patients were able to behave or perform the activities in search for the health

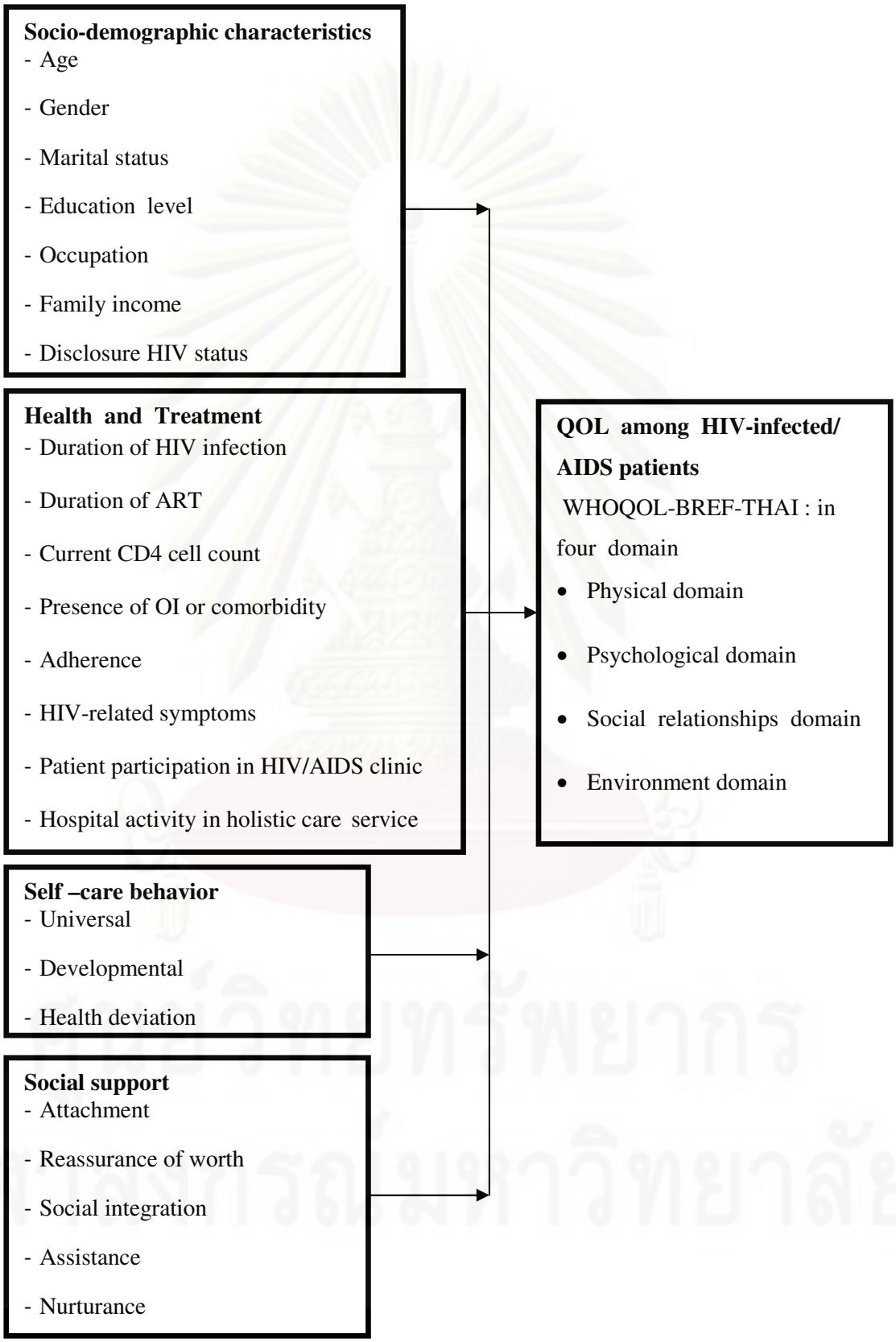
service. For example, patients were able to behave in accordance with the treatment plan of the doctor, prevent the spread of disease, take the full course of drugs, attend the follow up program, be aware of the side effects of the disease, avoid the risk factors that can worsen the disease and adjust self-image and self-perception.

- **Social Support** refers to the HIV-infected/AIDS patients perceiving assistance from the family, other relatives and social. This section used Brand and Weinert's Personal Resource Questionnaires: PRO 85-Part 2 (Brand, P.A. and Weinert, C., 1981) which was adjusted for PLWHA by Premreitai Noimuenwai (1993). The questionnaire evaluates perceived social supports in 5 aspects: the provision for attachment/intimacy (Intimacy), the indication that one is valued (Worth), that one is an integral part of a group (Social Integration), the availability of information, emotional and material help (Assistance) and the opportunity for nurturance (Nurturance). The self-reported questionnaire consists of 25 items with 5 rating scales from 1 (Strongly disagree) to 5 (Strongly agree). The high score was good social support.

1.8 Conceptual framework

The conceptual framework of this study included the four factors that could influence the QOL including 1) Socio-demographic characteristics 2) Health and treatment 3) Self-care behavior and 4) Social support. The QOL of HIV-infected/AIDS patients was measured by using WHOQOL-BREF-THAI which consist of 26 items classified in four main domains including physical, psychological, social relationship and environmental domain as presented in figure 1.1

Figure 1.1 : Conceptual framework



CHAPTER II
LITERATURE REVIEWS

This cross-sectional descriptive study aimed to measure QOL among HIV-infected/AIDS patients and to examine factors influencing QOL of HIV-infected/AIDS patients. This Literature review was undertaken by reviewing the relevant literature on the following topics:

Part 1: HIV/AIDS

1.1 HIV/AIDS Situation 2009

1.2 HIV/AIDS Care and Support

1.3 HIV/ AIDS Treatment Goals

1.4 HIV/AIDS Clinical treatment and monitoring in Thailand

Part 2: QUALITY OF LIFE (QOL)

2.1 Definition and components of QOL

2.2 Assessment of QOL and Instrument : WHOQOL-BREF-THAI

Part 3: SELF-CARE BEHAVIOR

3.1 Self-care Concepts

3.2 Components of Self-care behavior

Part 4: SOCIAL SUPPORT

4.1 Definition of Social support

4.2 Type of Social support

Part 5: FACTOR INFLUENCING QOL AND RELATED RESEARCH

5.1 Socio-demographic characteristics
5.2 Health and Treatment
5.3 Self-care behavior
5.4 Social support

PART 1 : HIV/AIDS

1.1 HIV/AIDS Situation 2009

1.1.1 The HIV/AIDS Situation in Thailand

Thailand is a medium-income country in southeast Asia. The first case of HIV/AIDS in Thailand was reported in September 1984 (Praphan Phanuphak, Chaichon Locharernkul, and Wilde, H. 1985). While the early AIDS cases were reported predominantly among Thai homosexual males, subsequently, the virus spread rapidly to injecting drug users, and to sex workers and their clients. As of September 2009, 357,407AIDS cases had been reported, and 95,793 deaths due to HIV/AIDS and of whom 75% were in the age group 20-44 years. The male-to-female ratio of reported AIDS cases was 2:1. Most of these groups (65%) were in labor/worker and agricultural groups. The AIDS cases reported to date with a know route of transmission, heterosexual mode accounted for the highest proportion of cases (84.11%), followed by injecting drug use (4.48%) and perinatal transmission (3.73%). The national prevalence rate of population infected HIV/AIDS was 4.95/100,000 populations (Epidemiological office, Ministry of Public Health [MOPH], 2009)

1.1.2 The HIV/AIDS Situation in Nakhon Ratchasima

Nakhon Ratchasima, also known as Korat is the biggest northeast region of Thailand and the center of Northeastern communication and economics, it could be called the “gate way to the Northeastern part (E-san)”. Four-fifth of the population lived in rural areas. Nakhon Ratchasima has a population of 2,579,286 residents living in 32 Districts (Nakhon Ratchasima Province. 2009.). The report of accumulation of HIV-infected/AIDS by government and private health care deliveries from 1984 to 30th September 2009 presented 8,205 PLWHA and 1,483 death cases, 6,835 (83%) of HIV-infected/AIDS cases at community hospitals (Nakhon Ratchasima Provincial Health Office, 2009). The morbidity rate is equal to 8.2/100,000 population. There were 213 new cases of HIV-infected/AIDS reported in 2009. As same as the country pattern, there was similar distribution of HIV-infected/AIDS in age and occupational group (Epidemiological office, Ministry of Public Health [MOPH], 2009).

1.2 HIV/AIDS Care and Support (WHO, 2009)

1.2.1 The four domains of HIV/AIDS comprehensive care

Providing care to PLWHA and to their families requires a broad range of services that include not only clinical care focusing on diagnosis and treatment but also supportive and complementary services to ensure that adequate nutrition, psychological, social and daily living support are available. Efforts to prevent HIV transmission is also needed to be strengthened whenever opportunities arise. Comprehensive HIV/AIDS care must include clinical care for everyone, psychological support, socioeconomic support, involvement of people living with HIV/AIDS and their families and respect for human rights and legal needs.

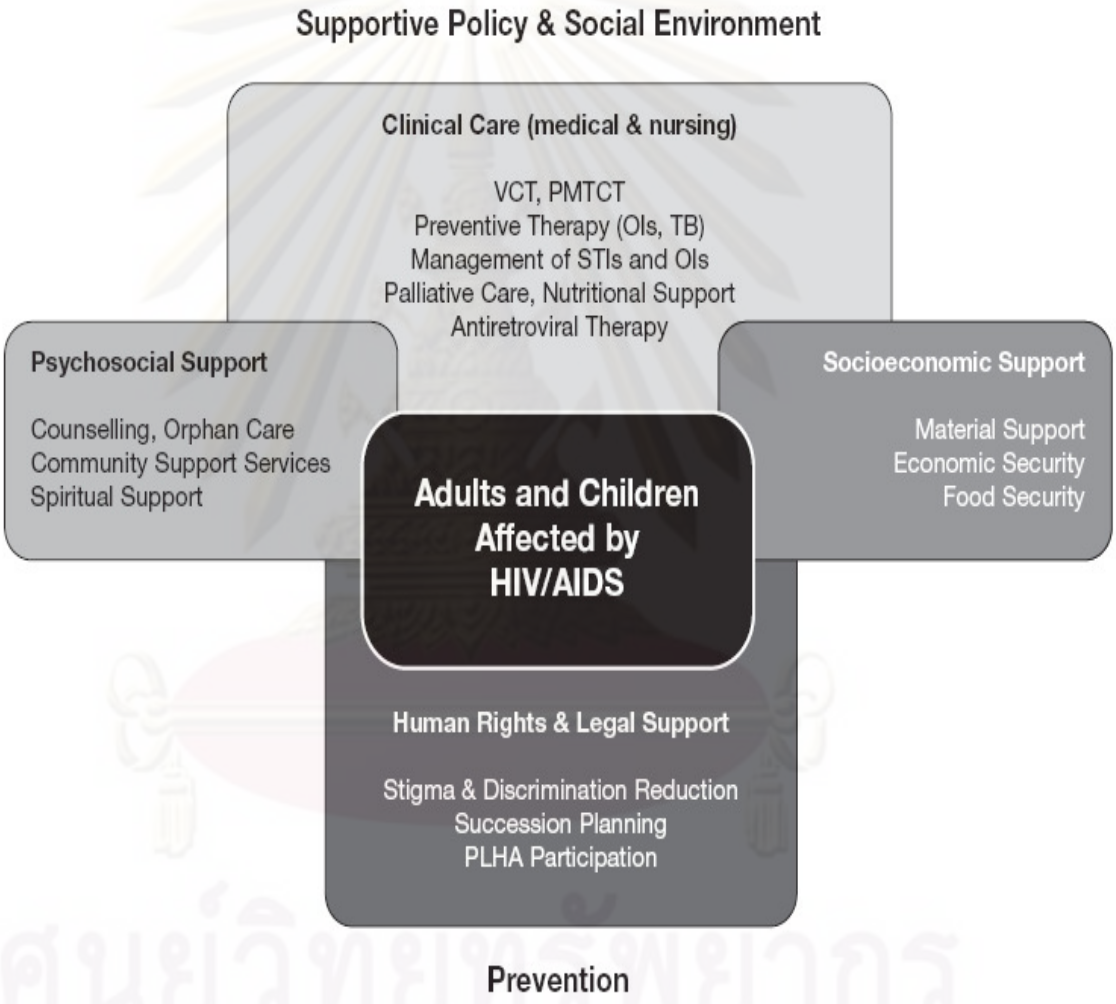
Clinical care Everyone should receive clinical care regardless of gender and age. Services include counseling and testing for diagnostic purposes (including dedicated program of voluntary counseling and testing); prophylaxis of OI; management of HIV/AIDS-related illnesses; control of tuberculosis and management of sexually transmitted infections; management of HIV disease with antiretroviral combination therapy; palliative care; access to drugs related to HIV/AIDS, including drugs for OI, cancer related to HIV/AIDS and antiretroviral drugs; interventions to reduce the mother-to-child transmission of HIV; support systems such as functioning laboratories and drug management systems; nutritional support; health education measures; adequate universal precautions in clinical settings; and post exposure prophylaxis.

Psychological support Psychological support includes initial and follow-up counseling services to meet the emotional and spiritual needs of PLWHA and their families and to assist in disclosure, including psychosocial support through support groups (post-test clubs) and other peer, volunteer or outreach approaches within communities.

Socioeconomic support Material and social support is needed within communities to ensure that nutritional and daily living needs are met. Various options include microcredit schemes; housing; food support; helping hands in the household; health insurance schemes that include HIV/AIDS care and treatment; and planning and support for orphans and vulnerable children in households and communities.

Respect for human rights and legal needs Services are needed that address stigma and discrimination in health facilities, in communities and in the workplace and promote equal access to care. This should also include succession planning and protection of property.

Figure 2.1 : The four main domains of HIV/AIDS comprehensive care



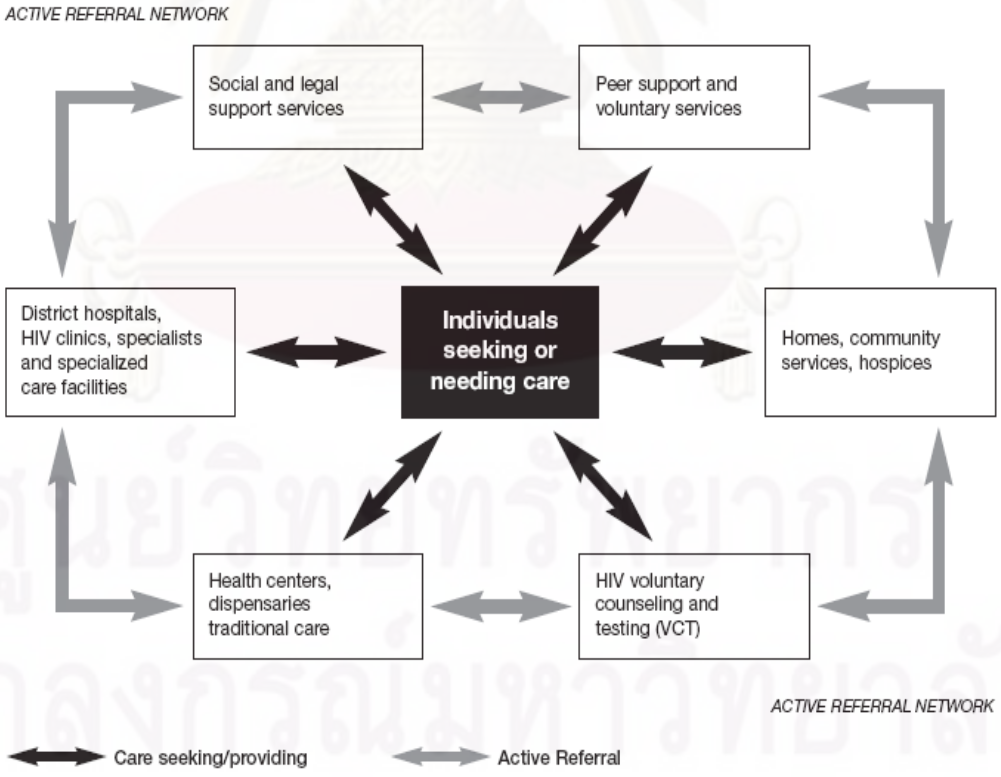
Source: Treatment Division, Family Health International

1.2.2 Continuum of HIV/AIDS care and support

In order to enable people seeking care to determine their serostatus and to access relevant HIV/AIDS care, treatment and support services, all opportunities

should be used to promote HIV testing and counseling within general outpatient and inpatient services, tuberculosis and sexually transmitted infection programmes, community health services, workplace clinics and any other site where resources are available. Upon diagnosis, counseling and HIV/AIDS care needs should be established and follow-up referral to comprehensive care must be ensured. Multiple providers or various programmes often offer the range of HIV/AIDS care, treatment and support services, although some programmes offer a wide range of comprehensive services within one site. Partnerships and collaboration between all the various providers are therefore essential to enable timely access to appropriate services. The HIV/AIDS care continuum (figure 2.2) illustrates how these links should function in a referral system in which care providers at any service point know who provides other services, where these services are located and when and how to make a referral.

Figure 2.2 : The HIV/AIDS care continuum network



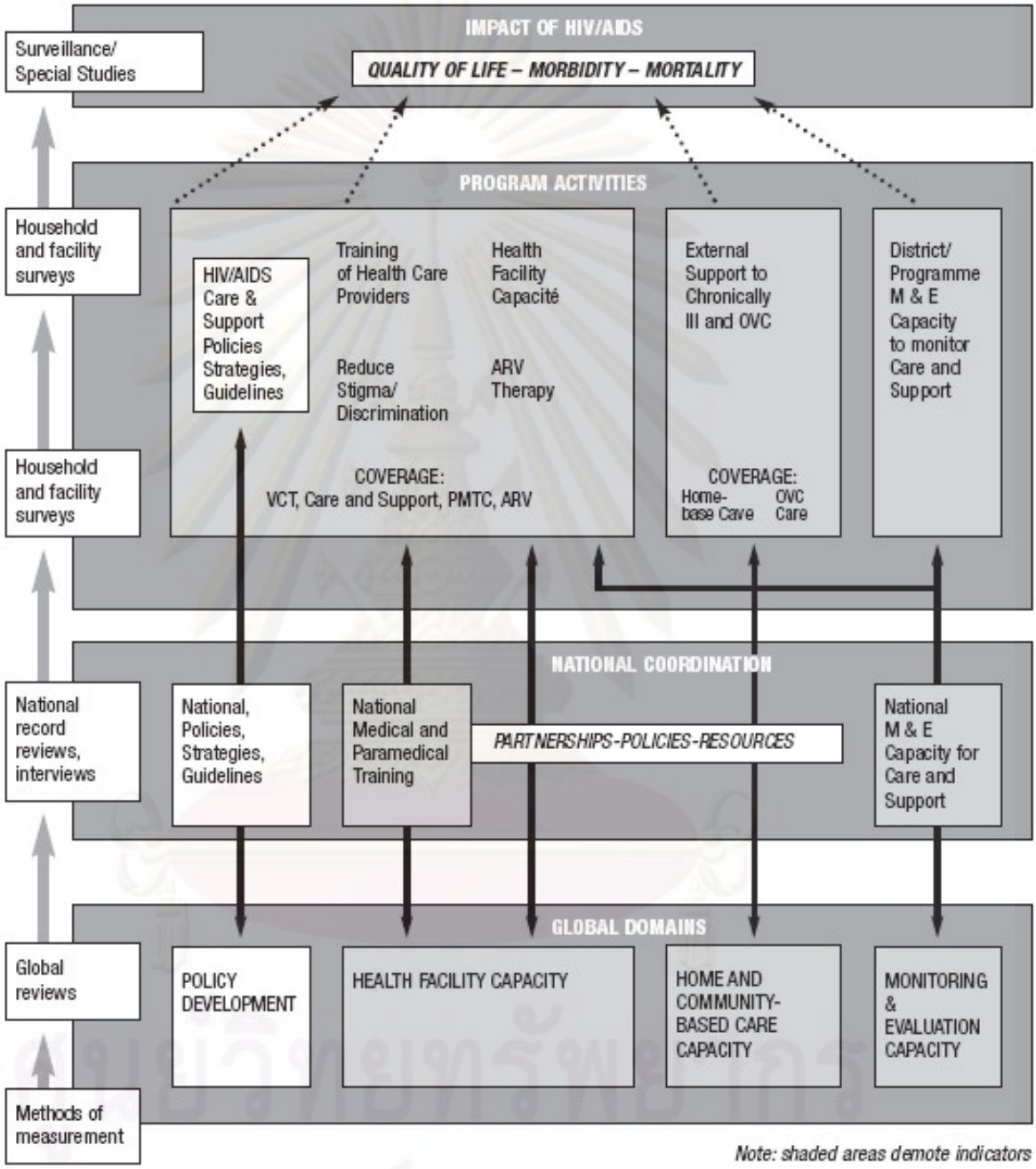
Source: Treatment Division, Family Health International

For clinical care needs, referrals may be made to specialized levels and discharge planning and follow-up referrals to peripheral levels, including home care. Home care providers should be able to assess risk situations for referrals to both clinical care and support services. In all parts and at all levels of the health care system, referrals need to be explicit to allow for social, legal and human rights and peer support needs to be met. Peers from support groups for people living with HIV/AIDS play a major role in this support and should be involved in shaping how care is delivered within communities. Different services are available as part of an essential comprehensive care package at each level of the health care system, such as the referral hospital; district or peripheral hospital; health centre and dispensary; or home care programme. Both developing practice standards and quality assurance to monitor the implementation of these standards are important in delivering appropriate HIV/AIDS care.

1.2.3 Monitoring and evaluation framework for HIV/AIDS care and support

A conceptual framework (figure 2.3) illustrates a model for monitoring and evaluating HIV/AIDS care and support activities. The model groups these indicators into strategic areas: developing and implementing policy; the capacity of health facilities, including human resources and access to antiretroviral drugs; the capacity of home- and community-based care; and the capacity to monitor and evaluate care and support. The conceptual model also places each of these strategic areas at different levels, from global to national to programme. At the global level, the input of resources from international and multilateral agencies into the various strategic areas is measured. At the national level, this global input is synthesized for implementation in countries by national AIDS control programmes and other national administrative bodies. The programme level is where implementation takes place, ultimately affecting the burden of HIV/AIDS in a country. Methods for measurement are shown alongside each level.

Figure 2.3 : Conceptual framework for monitoring and evaluating HIV/AIDS care and support



1.3 HIV/AIDS Treatment Goals (DHHS, 2009)

Eradication of HIV infection cannot be achieved with available antiretroviral regimens. This is chiefly because the pool of latently infected CD4 T-cells is established during the earliest stages of acute HIV infection and persists with a long

half-life, even with prolonged suppression of plasma viremia. The primary goals driving the decision to initiate ART therefore are:

- To maximally and durably suppress plasma HIV viral load,
- To reduce HIV-associated morbidity and prolong survival,
- To improve quality of life,
- To restore and preserve immunologic function, and
- To prevent HIV transmission.

Adoption of treatment strategies recommended in these guidelines has reduced HIV-related morbidity and mortality and has reduced vertical transmission. HIV suppression with ART may also decrease inflammation and immune activation thought to contribute to higher rates of cardiovascular and other comorbidities reported in HIV-infected cohorts. Maximal and durable suppression of plasma viremia delays or prevents the selection of drug resistance mutations, preserves CD4 T-cell numbers, and confers substantial clinical benefits, all of which are important treatment goals. Achieving maximal viral suppression in initial therapy requires the use of antiretroviral regimens with at least two, and preferably three, active drugs from multiple drug classes. Baseline resistance testing should guide the specific regimen design. When maximal initial suppression is not achieved or is lost, changing to a new regimen with at least two active drugs is required. The increasing number of drugs and drug classes makes viral suppression below detection limits the goal in all patients, even those with primary or acquired drug resistance. Viral load reduction to below limits of assay detection in a treatment-naïve patient usually occurs within the first 12–24 weeks of therapy. Predictors of virologic success include:

- high potency of antiretroviral regimen,
- excellent adherence to treatment regimen,
- low baseline viremia,
- higher baseline CD4 T-cell count (>200 cells/mm^3), and
- rapid reduction of viremia in response to treatment

Successful outcomes are usually observed although adherence difficulties may lower the success rate in clinical practice to below the 90% rate commonly seen in clinical trials.

Strategies to Achieve Treatment Goals

Achieving treatment goals requires a balance of sometimes competing considerations, outlined below. Providers and patients must work together to define individualized strategies to achieve treatment goals.

1. Selection of Initial Combination Regimen Several preferred and alternative antiretroviral regimens are recommended for use. Many of these regimens have comparable efficacy but vary to some degree in dosing frequency, pill burden, drug interactions, and potential side effects. A regimen should be tailored to each patient to enhance adherence and thus improve outcome of care. Individual tailoring is based on such considerations as expected side effects, convenience, comorbidities, interactions with concomitant medications, and results of pretreatment genotypic drug resistance testing.

2. Pretreatment Drug Resistance Testing Current studies suggest a prevalence of HIV drug resistance of 6%–16% in antiretroviral treatment-naïve patients, and some studies suggest that the presence of transmitted drug-resistant viruses may lead to suboptimal virologic responses. Therefore, pretreatment genotypic resistance testing should be used in guiding selection of the most optimal initial antiretroviral regimen.

3. Improving Adherence Suboptimal adherence may result in reduced treatment response. Incomplete adherence can result from complex medication regimens; patient factors, such as active substance abuse and depression; and health system issues, including interruptions in medication access and inadequate treatment education and support. Conditions that promote adherence should be maximized prior to and after initiation of ART.

1.4 HIV/AIDS clinical treatment and monitoring in Thailand

After the first AIDS case was recognized, AIDS was declared a severe communicable disease. The responses of the government to HIV/AIDS prevention and control, including the care of PLWHA from the beginning of the HIV/AIDS era to the

present in Thailand, the development of Thailand's ARV program may be viewed as consisting of three phases;

Phase I (1992-1997), involved the introduction of ART. It aimed to assess the readiness of the health system on the use of ART, and to identify the most appropriate way to provide the service to patients. Due in part to the high cost of ART, only a small number of PLWHA were provided with Zidovudine mono-therapy at a handful of participating hospitals.

Phase II, the Clinical Research Network Phase (1997-2000), aimed to strengthen clinical service centers with a strategy to integrate ART into a comprehensive care and support program for PLWHA. It involved the participation of 58 hospitals. Mono-therapy, dual therapy and, in the last year of Phase II, HAART treatments were used. However, the number of patients involved was only a few thousand. Of these, a few hundred participated under co-payment.

Prior to 2002, PLWHA were suffered from a comparatively short illness with symptomatic disease and death. The majority of people with AIDS could not access health care because they were poor (MOPH, 2006a; MOPH, 2007a). Thailand has several health insurance schemes; however about 20% of Thai people are not in any scheme (MOPH, 2006a). The introduction of the "30 baht universal coverage scheme" in 2001 enabled universal access to health care. However, only medications that were included on the national basic medicine list were permitted to be prescribed under that scheme. This list included preventive and curative care (treatment of all opportunistic infections), but excluded antiretroviral drugs and costs associated with testing and monitoring.

The lowering of ARV prices and the expansion of local generic ARV production at the turn of the century were among a number of factors that catalyzed the onset of Phase III of Thailand's ARV Program, the expansion of ART towards the goal of universal coverage. With continuing reductions in ARV prices, the production of generic drugs, particularly GPO-VIR (a triple therapy ARV combination developed by the Government Pharmaceutical Organization (GPO), Thailand) in early 2002, and growing political pressure to provide such vital treatment to the large numbers that required it, the Government initiated significant efforts to introduce ART into the universal health coverage scheme and to expand access to ARVs.

The Access to Care (ATC) Program and the National Access to Anti-retroviral Program for PHA (NAPHA) aimed to achieve the national policy target, set in 2003, of 50,000 people on ART by the end of 2004. The Government of Thailand expected to achieve this goal by mid-2005. The National Policy Framework on the Provision of Antiretroviral therapy for PLWHA in Thailand (2003) stated that by the end of 2004, all health service centers must be able to provide ARV to those who need. In addition to expanding the number of sites providing ARV, policy also focused on the development of appropriate drug combinations, negotiations on price reductions as well as drug purchases from the GPO, the training of health care professionals involved in providing ARV delivery (physicians, nurses, pharmacists, counselors and laboratory technicians) and the development of CD4 count laboratory capacity. The national ARV program also emphasized issues of adherence, highlighting the role of PLWHA and family members to support adherence to ARV medication and encouraging hospitals to work closely with NGOs, PLWHA groups and family members to support patients taking ARV.

In 2006, National Health Security Organization (NHSO) had announced the inclusion of ARV drugs into the national universal health coverage scheme (UC). As HIV/AIDS is a chronic infectious disease, prevention and control services were included under the general services provided through the 30-Baht Scheme, including health check-ups and the provision of counseling and support. Specific reference to HIV/AIDS was made in the context of the prevention and treatment of OIs which were included under the 30-Baht Scheme, and to the provision of ART**.** All PWHA in UC scheme can access to HIV/AIDS services in the benefit packages with quality of care and efficiency of system management.

NHSO GOALS FOR HIV/AIDS MANAGEMENT (NHSO, 2008)

- To improve QOL in PLWHA
- To reduce mortality and morbidity associated with HIV/AIDS
- To prevent HIV spreading among PLWHA

NHSO GUIDELINE FOR HIV/AIDS MANAGEMENT (NHSO, 2009)

HIV/AIDS could be received 4 set of benefit from National Health Security Organization (NHSO) following :

1. HIV/AIDS treatment
    1.1 Antiretroviral Treatment : ART
    1.2 Treatment of Mother to Child Transmission : PMTCT
    1.3 Post-exposure Prophylaxis : PEP
    1.4 Treatment of Hyperlipidemia (from ADR of ARV)
2. Laboratory testing
3. Voluntary Counseling and Testing : VCT
4. Positive prevention

1. HIV/AIDS treatment

1.1 Antiretroviral Treatment : ART

Goals of treatment:

-Reduction of HIV related morbidity and mortality

-Improvement of QOL

Table 2.1: Inclusion criteria for start Antiretroviral Treatment for adults patients consideration from clinical signs and symptoms and CD4 level

Clinical signs and symptoms	**CD4 level (cell/mm^3)**	**Recommendation**
AIDS-defining illness	Any value	Start Antiretroviral drug
Symptomatic	< 250	Start Antiretroviral drug
Asymptomatic	< 200	Start Antiretroviral drug
Asymptomatic	≥ 200	No start Antiretroviral drug, Monitoring CD4 q. 6 mo.

Antiretroviral drug (ARV) provided in NHSO supported hospital

RT Inhibitors :

1. Nucleoside RT Inhibitors (NRTIs) : Zidovudine(AZT), Didanosine(ddI) , Stavudine(d4T), Lamivudine (3TC)
2. Non-Nucleoside RT Inhibitors (NNRTIs) : Nevirapine(NVP), Efavirenz(EFV)
3. Nucleotide RT Inhibitors (NtRTIs) : Tenofovir (TDF)

Protease Inhibitors (PIs) :

Ritonavir(RTV), Indinavir(IDV), Nelfinavir(NFV), Lopinavir/r(LPV/r), Atazanavir(ATV)

Table 2.2 Adverse events / Toxicity of antiretroviral drugs (DHHS, 2009)

ARV group	Generic Name (abbreviation)/ Trade Name	Adverse Events
Nucleoside RT inhibitors (NRTIs)	Zidovudine (AZT, ZDV)/ Retrovir, generic zidovudine	• Bone marrow suppression: macrocytic anemia or neutropenia • Gastrointestinal intolerance, headache, insomnia, asthenia • Nail pigmentation • Lactic acidosis with hepatic steatosis (rare but potentially life-threatening toxicity)
	Lamivudine (3TC)/ Epivir	• Minimal toxicity • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue 3TC.
	Stavudine (d4T)/ Zerit	• Peripheral neuropathy • Lipoatrophy • Pancreatitis • Lactic acidosis with hepatic steatosis (rare but potentially life-threatening toxicity) • Hyperlipidemia

ARV group	Generic Name (abbreviation)/ Trade Name	Adverse Events
		• Rapidly progressive ascending neuromuscular weakness (rare)
	Didanosine (ddI)/ Videx EC, generic didanosine enteric coated (dose same as Videx EC)	• Pancreatitis • Peripheral neuropathy • Lactic acidosis with hepatic steatosis (rare but potentially life-threatening toxicity) • Potential association with non cirrhotic portal hypertension
Nucleotide RT Inhibitors (NtRTIs)	Tenofovir Disoproxil Fumarate (TDF)/ Viread	• Asthenia, headache, diarrhea, nausea, vomiting, and flatulence • Renal insufficiency, Fanconi syndrome • Osteomalacia • Potential for decrease in bone mineral density • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue TDF.
Non-nucleoside RT inhibitors (NNRTIs)	Nevirapine (NVP)/ Viramune	• Rash, including Stevens-Johnson syndrome • Symptomatic hepatitis, including fatal hepatic necrosis, has been reported
	Efavirenz (EFV)/ Sustiva	• Rash(less than Nevirapine) • Central nervous system symptoms • Increased transaminase levels • False-positive results reported with some cannabinoid and benzodiazepine screening assays • Teratogenic in non human primate and potentially teratogenic in humans

ARV group	Generic Name (abbreviation)/ Trade Name	Adverse Events
Protease inhibitors (PIs)	Lopinavir + Ritonavir (LPV/r)/ Kaletra	•GI intolerance, nausea, vomiting, diarrhea • Asthenia • Hyperlipidemia (especially hypertriglyceridemia) • Elevated serum transaminases •Hyperglycemia • Fat maldistribution • Possible increased bleeding episodes in pts with hemophilia • PR interval prolongation • QT interval prolongation and torsade de pointes
	Ritonavir (RTV)/ Norvir	• GI intolerance, nausea, vomiting, diarrhea • Paresthesias—circumoral and extremities • Hyperlipidemia (especially hypertriglyceridemia) • Hepatitis • Asthenia • Taste perversion • Hyperglycemia • Fat maldistribution • Possible increased bleeding episodes in pts with hemophilia

ARV group	Generic Name (abbreviation)/ Trade Name	Adverse Events
	Indinavir (IDV)/ Crixivan	• Nephrolithiasis •GI intolerance, nausea • Indirect hyperbilirubinemia • Hyperlipidemia • Headache, asthenia, blurred vision, dizziness, rash, metallic taste, thrombocytopenia, alopecia, and hemolytic anemia •Hyperglycemia • Fat maldistribution • Possible increased bleeding episodes in pts with hemophilia
	Nelfinavir (NFV)/ Viracept	• Diarrhea • Hyperlipidemia • Hyperglycemia • Fat maldistribution • Possible increased bleeding episodes in pts with hemophilia • Serum transaminase elevation
	Atazanavir (ATV)/ Reyataz	• Indirect hyperbilirubinemia • Prolonged PR interval—first degree symptomatic AV block in some pts • Use with caution in pts with underlying conduction defects or on concomitant medications that can cause PR prolongation •Hyperglycemia • Fat maldistribution • Possible increased bleeding episodes in pts with hemophilia • Nephrolithiasis

1.2 Treatment of Mother to Child Transmission : PMTCT

Goal : Prevention of HIV Transmission from maternal HIV infection to newborns.

1.3 Post-exposure Prophylaxis : PEP

Goal : Prevention of HIV from occupational Post –Exposure Prophylaxis and Non-occupational Post –Exposure Prophylaxis

1.4 Treatment of Hyperlipidemia (ADR from ARV)

Goal : Reduce risk of Cardio Atherosclerosis Disease from Hyperlipidemia after Antiretroviral treatment

Inclusion criteria:

1. Used or using Antiretroviral drug
2. Total cholesterol ≥ 240 mg/dl
3. Not improve by used Dietary therapy and Therapeutic lifestyle changes

Drug use: Gemfibrozil, Sivmastatin, Fenofibrate

2. Laboratory Testing

- ***Basic Laboratory Testing*** **:** Complete Blood Count (CBC), Fasting Blood Sugar (FBS), Creatinine (Cr), Triglyceride, Total Cholesterol, Liver enzyme (SGPT/ALT)
- ***Immunology and Virology*** **:** Anti HIV, Antibody, CD4, Viral load, Drug resistance
- Investigation neonatal HIV infection from HIV mother by Polymerase Chain Reaction (PCR)

Set of benefit

1) No use Antiretroviral drug : CD4 not more than 2 times/year (every 6 months)
2) Use Antiretroviral drug:
    a. Basic Laboratory Testing ; not more than 2 times/year
    b. CD4 ; not more than 2 time/year (every 6 months)

c. Viral load not more than 1 time/year

d. Drug resistance if has indication and not more than 1 time/year

3) Neonatal (from HIV mother) : PCR between age begin 6 weeks to 6 months

3. Voluntary Counseling and Testing : VCT

- For screening asymptomatic HIV/AIDS
- For HIV/AIDS has alternative choice for reduce risk that cause of reduce naïve
- For counseling and advise HIV/AIDS self-care

Set of benefit : Anti-HIV Testing not more than 2 times/year.

4. Positive prevention

- To prevent spread disease in HIV/AIDS and person who receive VCT

Set of benefit : Receive condoms

TREATMENT OF OPPORTUNISTIC INFECTIONS : OI (NHSO, 2008)

Goal : Prophylaxis and treatment HIV/AIDS who has risk or illness from OIs

Table 2.3 : Prophylaxis and treatment of OI

CD4 count (cell/mm3)	ALC (cell/mm3)	Prophylaxis of OI	Drug Prophylaxis
<200	<1000	PCP, Toxoplasmosis	Cotrimoxazole 2 tab OD
<100	<600	Add prophylaxis for Cryptococosis	Fluconazole(200mg) 2 cap once weekly
<50		Add MAC prophylaxis	Azithromycin(250mg) 4-5 tab once weekly

Prophylaxis of Pneumocystic carinii pneumonia (PCP)

Primary prevention, inclusion criteria :

1. CD4<200 cell/mm3 or <14% or
2. History of Oropharyngeal candidiasis or Oropharyngeal candidiasis or
3. Has an Pruritic Papular Eruption (PPE) or
4. Unknown Chronic diarrhea more than 14 days or
5. Unknown Weight loss >10-15% within 3 months

Drug use : Cotrimoxazole (TMP/SMZ 80/400 mg) 2 tablets/day or 2 tablets 3 times/week

: Dapsone 100 mg/day if Sulfonamide or Trimethoprim allergy

Periods of prophylaxis : Long life or CD4>200 cell/mm^3 (in patients on HAART)

Prophylaxis of Toxoplasma encephalitis

Primary prevention, inclusion criteria : CD4 <100 cell/mm^3

Drug use : Cotrimoxazole (TMP/SMZ 80/400 mg) 2 tablets/day

: Dapsone 50 mg /day + Pirymethamine (25 mg) 2 tablets/week + Folic acid 25 mg/week if Sulfonamide or Trimethoprim allergy

Period of prophylaxis : Long life or CD4>200 cell/mm^3 (in patient on HAART)

Prophylaxis of Cryptococcosis

Primary prevention, inclusion criteria :

1. CD4<100 cell/mm^3 or
2. Asymptomatic and symptomatic of C.neoformans
3. Negative results of cryptococcal antigen

Drug use : Fluconazole 400 mg/week

Periods of drug use : Long life or until has disease of C.neoformans

Prophylaxis of Mycobacterium avium complex (MAC)

Primary prevention, inclusion criteria : CD4<50 cell/mm^3 and asymptomatic disease and negative of blood's microbacteria

Drug use : Azithromycin (250 mg) 4-5 capsules/ week or

: Clarithromycin (250 mg) 2 tablets/day

Period of prophylaxis : Long life or CD4 > 100 cell/mm^3 (in patients on HAART)

PART 2 : QUALITY OF LIFE

2.1 Definition and component of QOL

2.1.1 Definitions of QOL

Definitions of QOL in Terms of Health

The World Health Organization (WHO, 1948) has declared health to be "a state of complete physical, mental, and social well-being, not merely the absence of disease." Many other definitions of both "health" and "QOL" have been attempted, often linking the two, frequently emphasizing components of happiness and satisfaction with life. In the context of clinical trials, QOL is concerned only with evaluating those aspects that are affected by disease or treatment for disease. To distinguish between QOL in its more general sense and the requirements of clinical medicine and clinical trials, the term "health-related quality of life: HRQOL" is frequently used in order to remove ambiguity.

Health-related quality of life (HRQOL)

Definitions of HRQOL were varied widely, but there are two central aspects of this construct. First, HRQOL is subjective, and hence, it should be assessed from the patient's prospective whenever possible. Second, HRQOL is a multidimensional construct that integrates a broad range of outcomes. One definition that includes both of these components describes HRQOL as an individual's subjective perception of the impact of health status, including disease and treatment, on physical, psychological, and social function (Leidy N, Rich M., Geneste B., 1999).

QOL is very significant for human life not only in health but also on illness. Many experts have examined the context of QOL and found that it is difficult to constructs, define, and measure because cultural, ethical, religious and other personal value influence perceptions of the meaning and consequences of QOL (Zhan L.C, 1992). Therefore, the concept of QOL has been given different meanings, depending on the users. The term "QOL" is defined differently by various experts as follows:

QOL not only refers to abundance in materials, but it also involves mental health, creativity, integrity, acceptance, the feelings that one is accepted by others, and

being free from fear and worry. According to UNESCO (1974), QOL is defined as the feeling that takes place when ones live their life feeling satisfied with different components in life, which is the most important to individuals. QOL as a complex phenomenon as it involves satisfaction when mental and social needs are met, on both micro and macro levels (Sharma, RC. 1975).

QOL is defined in terms of well-being and states that well-being is characterized by experience of contentment, pleasure, and happiness that person's perceived condition of existence (Orem, D.E., 1985).

According to the Ministry of Public Health (1986), QOL of Thai people is determined by eight basic necessities of food, residence, education, safety, production, small number of children, development, and ethics, with 32 indicators.

World Health Organization's Quality of Life Group (WHOQOL Group,1993) as follows : "QOL is an individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concern. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independency, social relationship and their relationship to salient features of their environment".

The World Health Organization (WHOQOL Group,1995a) highlights the view that QOL is subjective, includes both positive and negative facets of life and is multi-dimensional. It is also theorized that individuals move on a continuum of QOL. There is still scanty information on the interrelationships among the domains of QOL and hence, there is need for further research to clarify the interrelationships among the domains of QOL.

The World Health Organization (WHOQOL Group, 1995b) has defined QOL as "individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns" Through this systematic inquiry, the WHOQOL(1995b) identified six domains of QOL, (1)physical, (2)psychological, (3)level of independence, (4)social relationships, (5)environment, and(6)spirituality, religion and personal beliefs (SRPB). The model is inclusive of the sum total of all the six QOL domains.

The QOL is a multi- dimensional concept that involves individual's perception about physical being, psychological being, independence, social relations, environment, and personal beliefs under the culture, value, and goals in life of individuals (WHOQOL Group. 1997).

The QOL is a broad concept affected in a complex way by the person's physical health, psychological state, and level of independence, social relationships, personal beliefs and relationships to salient features of their environment (WHOQOL Group,1998b).

In summary, QOL was defined in terms of an individual's subjective experiences and a construct that cannot be generalized across cultures (Kemppainen, J.K. 2001; Phaladze, N.A., et.al. 2005; Robinson L., et al. 2006). And it refers to a good life that is filled with happiness which comes from self-development and compassion for others in society. QOL is a broad term and very difficult to define. The concept involves both objectivism and subjectivism. Different scholars have attempted to define the term QOL, and their definitions are different depending on their philosophy and specialization. Based on these definitions, QOL in this study refers to the perception of self-satisfaction toward physical and psychological condition, social relationship and environment on the basis of their culture, value and life goals.

2.1.2 Components of QOL

The overall concept of QOL consist of a number of distinct domains. The four major domains of QOL generally include the following categories: 1) Physical status and functional abilities 2) Psychological status and well-being 3) Social interactions 4) Economic and/or vocational status and factor.

The three underlying dimensions of QOL are physical, psychological, and social aspects of one's existence affecting life satisfaction and personal well-being. Physical well-being is associated with functional health status, perceived health, physical symptoms, and ability to meet basic needs. Psychological well-being reflects a degree of contentment, productivity, control, self-perception, and emotional adjustment appropriate to life span development. Social well-being is dependent upon attaining an acceptable level of interaction with friends, support from family members, and role fulfillment (Faulkner MS., 2003)

At present, there is no standardization of the components of QOL and their indicators. However, in order to improve QOL, there are various factors which are interrelated. If one of the factors is affected, the rest will be affected as well. That means individual's QOL will be reduced. Scholars in different fields have tried to define the major components of QOL as follows:

QOL come from basic needs of human (Flanangan, JC., 1978) which can be divided as follows:

1. Having material comforts and happiness such as a nice house, good food, convenience, and good health.

2. Having relationships with others such as spouses, parents, relatives, friends, and others, as well as having and raising children.

3. Having activities in community and society and having chances to help others.

4. Having successful personality development such as cognitive development, learning, self-understanding, understanding of own weaknesses, good work, good financial gain, and creative expression.

5. Having recreational activities such as reading, listening to music, watching sports, and joining social events.

There are different factors that are related to QOL including food, health, nutrition, education, environment, resources, residence, settlement, occupation, value, religion, ethics, law, and psychological factors. (UNESCO, 1981)

The minor physical, mental, emotional, and social components to construct an assessment of QOL in four domains (Ferrans C.E., and Power M., 1985) as following;

1. Health and functioning domain consisting of treatment, health, access to health services, physical self-reliance, kidney transplant, termination of dialysis, long life, sexual relationship, family responsibility, benefits for others, stress, free time activities, traveling, and retirement.

2. Socioeconomic domain consisting of friend, spiritual support, home, neighbor, standard of living, condition of the society, employment/unemployment, education, and financial independence.

3. Psychological domain composed of mental peacefulness, religious faiths, life goals, happiness, satisfaction in life and physical appearance.

4. Family domain composed of health of family members, children, happiness in the family, and spouse.

The micro and macro components of QOL as follows (Sharma, RC.,1988):

1. Standard of living: residence, food and nutrition, health, education, employment, national income, and social services

2. Population: size, birth rate, mortality rate, migration, and density

3. Society and culture: political system, social system, and cultural value

4. Developmental process: developmental sequence, international relations, and trade

5. Resources: humans, nature, capital, and technology

6. Physical components-quantity and quality: food, water, residence, and clothing.

The components of QOL are 1) satisfaction with general life 2) self-concept including the feeling of self-worth and self-image 3) health and physical condition including daily living activities 4) socioeconomic status including satisfaction with occupation, education and income (Zhan L.C., 1992).

QOL has been described in terms of objective measures, such as income, housing, physical functioning, work, socioeconomic status, and support networks, and in terms of subjective measures, such as attitudes, perceptions, aspirations, and frustrations (Canam, C. and Acorn, S, 1999).

In brief, QOL is composed of different components. As a result, a study on QOL has to synthesize and select the components that suit the objectives of the study.

2.2 Assessment of QOL and Instrument : WHOQOL -BREF-THAI

2.2.1 Assessment of QOL

Assessment of QOL depends on the conceptual framework and objectives of each of the studies. At present, there are two criteria generally used to assess QOL :

objective indicators and subjective indicators (UNESCO, 1980). Assessment of objective indicators is an assessment of QOL using concrete information that can be observed. They are generally social factors or indicators, and they include economic information such as income, education, occupation, residence, food, air, and environment. As for subjective indicators, they are social indicators which are related to individual's perception as assessed by eliciting individual's feelings and attitudes toward life experience and others which are related to satisfaction in life, happiness, happiness, self- worth, and decision and perception of value and meaning in life.

Assessment of individual's QOL, health, and happiness

There are four domains as follows:

1. Physical domain

Physical domain is an individual's ability to provide for the necessities of life, including routine activities, fulfill usual roles, cope with pain/discomfort, and maintain well-being (Phaladze, et al., 2005; WHOQOL, 1995b; WHOQOL Group, 1998b: WHOQOL-HIV Group, 2003b; Wilson, I.B., and Clearly, P.D., 1995; Sousa, K.H., Holzemer, W.L., Henry, W.L., and Slaughter, R., 1999). Physical health gives an individual the ability to perform and adapt to the environment. Physical health is estimated by an individual's perceptions of energy and fatigue, pain and discomfort, and sleep and rest. The physical health domain has shown a positive relationship with overall QOL. When one's physical status was reported as high, perceptions physical health and QOL were more positive. It can be divided into seven sub-categories as follows:

1.1 Pain and discomfort of individuals consist of individual's perception of their physical condition which affects their daily living. It involves perception of the ability to manage or reduce fear and anxiety, stress that is caused by pain, as well as the use of medication to reduce pain which affects QOL. Individuals have responses, endurances, and acceptance of pain and discomfort. Pain and duration of pain varies among individuals, and such symptoms would be known from the manifestation of symptoms and patient's expressions which affect QOL.

1.2 Energy and fatigue includes strength, enthusiasm, and tolerance of individuals

which are necessary in daily living and recreations. It also involves eagerness and sufficient power to deal with fatigue that may result from certain problems such as sickness or depression. Overexertion of energy results in fatigue, and chronic fatigue increases individual's dependence on others.

1.3 Sleep and rest involves perception about sleep and rest that affects QOL including adequacy of sleep and rest, problems about sleep such as difficulty sleeping, waking up in the middle of the night, getting up too early, not being able to have a deep sleep, and not feeling fresh after waking up, as well as using sleeping pills or other substances to induce sleep.

1.4 Mobility involves individual's ability to move from one place to another without assistant. However, sometimes inability to move may not affect QOL. For example, the disabled may be satisfied with using a wheelchair to move around both at home and at work.

1.5 Activities of daily living consist of individual's ability to perform daily living activities, to take care of themselves and their belongings and properties, and to perform different necessary activities each day. The need to depend on others for daily living activities affects QOL.

1.6 Dependence on medicinal substances and medical aids involves individual's perception of their dependence of medications or other medical interventions such as acupuncture or herbal medicines to create physical and mental discomfort. For some patients, medical treatment may affect their QOL such as the side effects of chemotherapy, while for others it may increase QOL such as pain killers used in cancer patients. This includes other forms of non-medical treatment such as the use of a pacemaker, etc.

1.7 Working capacity involves the ability to use energy to work, which refers to main activities of individuals which may be paid or unpaid such as community services, education, childcare, and household chores. The assessment emphasizes the characteristics of the work, without taking the type of work and the feelings toward work and quality of workplace into account.

2. Psychological domain The psychological domain is an individual's perceptions of body image, cognitive function (thinking, learning, memory, and concentration), self-esteem, feelings about self, and perceptions of how other people feel about the person (WHOQOL-HIV Group, 2003a). Psychological well-being is the focus of intense research attention and is relevant to the experience of the individual (WHOQOL-HIV Group, 2003b). It is a person's evaluative reaction to his or her life; either in terms of life satisfaction (cognitive evaluations) or affect (ongoing emotional reaction). Psychological well being has been found to be a source of resilience against stress and becoming ill. An individual's psychological well-being positively influences their QOL (WHO, 1995; WHOQOL-HIV Group, 2003b). It is divided into six subcategories:

2.1 Positive feelings refer to individual's positive experiences about one self such as peacefulness, happiness, fulfillment, and fun, which are a viewpoint and a feeling about the future. Negative feelings are not included.

2.2 Thinking, learning, memory, and concentration involves individual's views about their thinking, learning, memory, concentration, and decision-making ability, as well as fastness and clarity of ideas. The assessment does not include the degree of individual's alertness and awareness. When this instrument is used with individuals who have memory problems, caregivers or close person's assistance is needed.

2.3 Self-esteem is individual's feeling about themselves, and it can be either positive or negative. Self-esteem involves self-worth, efficiency, ability for own accomplishment, and self-control. In addition, it involves individual's feeling about living with others, education, career achievement, behavior, family relationship, honor, and self-acceptance. For some individuals, their self-esteem comes from work, both at home and at office, or acceptance from others. In some societies, self-esteem comes from the family rather than from oneself.

2.4 Bodily image and appearance is individual's views about themselves, both positive and negative. It depends on individual's satisfaction according to self-concept, learning, and disability.

2.5 Negative feelings is individual's negative ideas about themselves including despair, guilt, sadness, sorrow, fear, anxiety, and lack of satisfaction in life. In addition, it also involves consideration of negative feelings and the effects on daily life of individuals. Some individuals may have mental problems such as severe depression, mania, and panic.

2.6 Spirituality, religion, and personal beliefs involve individual's beliefs that affect their life. This includes perception about spirituality, religion, meaning in life, and other beliefs that affect ways of living. It also affects overcome of obstacles. Individuals who are religious, their personal beliefs and spirituality lead to tranquility, happiness, stability, and meaningfulness in life. However, some individuals may feel that religion has a negative influence on them.

3. Social relationship domain Social relationships domain is an individual's perceptions of relationships with self, family, and friends and the ability to carry out his/her role. This domain includes an individual's perceptions of their social support, sexual activity, and social inclusion. People value their relationships with self and with others(WHOQOL Group, 1998b; WHOQOL-HIV Group, 2003a). Humans need to feel a sense of belonging and acceptance, they need to love and be loved both sexually and non-sexually. In the absence of such belonging, individuals become susceptible to loneliness, anxiety, and depression. When an individual is no longer able to physically, emotionally, or sexually relate to self and others, QOL is often negatively affected (WHO, 1995; WHOQOL-HIV Group, 2003a). This refers to individual's perception about their relationships with others, assistance received from others, and assistances given to others.

3.1 Personal relationships are expression of friendliness, good wishes, love, and attachment which can be expressed physically and emotionally with hugging, touching, giving and receiving love, sharing happiness and sufferings, etc. Personal relationships also include love between friends, spouses, lovers, and same-sex partners.

3.2 Social support refers to individual's expression when receiving assistance and support from families, friends, and relatives in solving problems including

personal problems, family problems, and work-related problems. This includes bad feelings individuals receive from family and friends such as bad-mouthing and physical abuse.

3.3 Sexual activity is individual's appropriate expression of sexual stimulation and desires. It involves, sex drives, sexual expressions, and sexual fulfillment. It is a difficult issue as some societies believe that it is too personal to reveal to others. Also, individuals of different ages and genders tend to have different responses. In some society, whether individuals have sexual desires or not do not affect QOL.

4.Environmental domain Environment domain is an individual's perceptions of financial ability, safety of physical and home environment, and accessibility to both health and social services. People would like to have the financial resources that they need to meet their daily needs (WHOQOL Group, 1998b, WHOQOL-HIV Group, 2003a). Physical safety and security are important aspects of the environment because they give the individual emotional freedom. It is also vital to have accessibility to good quality health and social care that provide opportunities for acquiring new information and skills. The environment provides for participation in opportunities for recreation and leisure. A safe and secure environment promotes a high level of QOL (WHO, 1995; WHOQOL-HIV Group, 2003b). This domain consist of eight sub-categories as follows:

4.1 Freedom, physical safety, and security are individual's feelings toward physical threats such as suppression by others or the politics. Safety and security in life refer to freedom to live independently and it also involves having a safe place to live. Some individuals may not have such security. These include victims of a disaster, homeless people, abused people, and prisoners.

4.2 Home environment refers to the place individuals live, sleep, and keep their belongings, and it affects their way of life. In general, quality of the home is assessed from convenience, comfort, privacy, safety, cleanliness, and the strength of the structure. In addition, the relationship with the neighbors is also an important factor on QOL. This assessment can be used with individuals who

have a place to live with families, as well as those who live with their families but have to relocate all the times such as those who live in an institute or migrants. However, this assessment is not used with the homeless.

4.3 Financial resources refers to individual's opinion toward their financial status and its sufficiency to ensure their good health and good life. It also involves satisfaction with their income, but it does not involve employment status.

4.4 Health and social care: accessibility and quality involve the availability of healthcare and social services individuals receive or expect to receive, as well as the quality of care. This also involves the difficulty to gain access to services and friendliness of the services.

4.5 Opportunities to acquire new information and skills refer to individual's chances and needs to learn new skills or knowledge. They can study in an institute or perform self-study.

4.6 Participation in and opportunities for recreation and leisure activities are individual's ability, opportunity, and volunteer to spend free time on hobbies and recreational activities including meeting friends, reading, playing sports, reading, watching TV, spending time with family, and doing nothing at all.

4.7 Physical environment (pollution, noise, traffic, and climate) is individual's views about the environment surrounding them including pollution, air, and beauty of the environment which affect their QOL. Some cultures give great significance to the environment including use of water and pollution.

4.8 Transport involves convenience of individuals when traveling with any kind of vehicles so as to be able to run errands or do work as they want. It does not involve type of transportation and traveling within the residence.

2.2.2 The WHOQOL-100 and WHOQOL-BREF-26 Instrument (WHO,1996)

World Health Organization has developed two universal instruments to measure QOL called World Health Organization Quality of Life Assessment Instrument (WHOQOL): WHOQOL-100 and WHOQOL-BREF-26 to assess the QOL of people all over the world regardless of differences in ethnicities and cultures. The

instruments were developed with cooperation of experts on QOL from different countries including Thailand (WHOQOL Group) under the concept that QOL is individual's perception under the cultural context, value, and life goal, expectation, standard, and what they are involved with. These are complex results of physical and mental health, level of independence, social relationships, environment, and personal beliefs. The instruments were examined to ensure validity and reliability in the fields. Their responsiveness was also tested.

WHOQOL-BREF-26 is a short version of the WHOQOL-100, consisting of 26 items instead of 100 items depending on the field data used to compile the WHOQOL-100. This assessment can be used in all cultures, and the results can be compared. WHO has tested its validity and reliability which were assessed from the sensitivity of the instrument and found that the scores of the main category of the WHOQOL-BREF-26 was equal to 0.9 compared to scores of different categories of the WHOQOL-100.

The WHOQOL-BREF is an easy-to-use instrument which was developed by the World Health Organization WHO (WHOQOL Group, 1995a). The WHOQOL-BREF translated into Thai by the Department of Mental Health (Suwat Mahatnirunkul, Wirawan Tuntipivatanakul, and Wanida Pumpisanchai, 1998) and validated in HIV/AIDS patients in Thailand. In general, internal consistency was quite good. The Cronbach's alpha ranged from 0.61 to 0.81 across four domains and the alpha value of the whole scale was 0.90 (Phantipa Sakthong, Schommer, J., Gross, C., Rungpetch Sakulbumrungasil, and Wisit Prasithsirikul, 2007). For group comparisons, alphas above 0.70 are recommended (Nunnally JC., 1978).The reliability of this questionnaire is 0.84.

For this study, the researcher used the WHOQOL-BREF-THAI questionnaire which is approved to be valid, reliable, and credible. It consist of four domains-physical, psychological, social relationship, and environmental health. There are 26 items, two of which elicit information about overall QOL and health. The physical domain consist of seven items, the psychological domain consist of six items, the social relationship domain consist of three items, and the environmental health domain consist of eight items, all of which are ranged in a five-point Likert scale.

PART 3 : SELF-CARE BEHAVIOR

3.1 Self-care Concepts

The self-care concept is the issue in which many researchers are increasingly interested, with a belief that human's being has a potential capacity in taking part in the process of self-care for their good health. Therefore, a lot of efforts have been put to move this concept to be more disseminated and more socially accepted.

3.1.1 Definition of Self -care

- Self-care has varieties of activities that an individual initiates and practices for different advantages in order to maintain or develop their good health and life conditions (Pender, N.J., 1987).

- Self-care is defined as the several activities that an individual initiates by himself to maintain his life, good health and well-being. The self-care is a natural way of life and behaviors learned from the practices, traditions, and cultures of different groups of people (Orem, D.E., 1995).

3.1.2 Orem's Self care Theory

Orem (2001) proposed three theories, including the theory of self-care, self-care deficits, and theory of nursing system. Central to all three theories is that people function and maintain life, health, and well-being by caring for themselves. Self-care is purposeful and contributes to human structural integrity, functioning, and development. The self-care activities have the following goals (Orem, D.E., 2001):

- Maintaining life process and supporting the regular function of lifestyle
- Maintaining adequate development growth and maturity
- Controlling, protecting, treating diseases and diverse dangers
- Adjusting properly to health disability

According to Orem's self-care theory (Orem, D.E., 2001), Self-care is the behavior that is purposeful and contributes to human structural integrity, functioning and development. Self-care behaviors as "the practices of activities that individuals

personally initiate and perform on their own behalf in maintaining life, health, and well-being" (Orem, D.E., 1995). Self-care behaviors are activities that the patients perform on their own behalf in maintaining life, health, and well-being to meet three self-care behaviors, including universal, developmental, and health deviations that result from their illness. Self-care behavior includes adherence to medication, diet, and exercise. Self-care also refers to aspects such as seeking assistance when symptoms occur and daily weights (Jaarsma, T., Abu-Saad, H.H., Dracup, K., and Halfens, R., 2000). These activities are essential for independent living and to maintain a reasonable QOL. If patients can take better care of them and adhere to the treatments recommended for HIV/AIDS, they can expect to have fewer symptoms and better functional capabilities. So, patients must cope with pain and disability, modify their behavior to minimize undesirable outcomes, adjust their social and work lives to accommodate their symptoms, and functional limitations, and cope with the emotional consequences. Although, every individual adult has the capacity for self-care however, when a health problem arises it is possible that this capacity is insufficient to confront the situation, making it then necessary to receive help from other persons who compensate for this deficit (Sanchez, R.G., 1999.).

3.2 Components of Self-care behavior

According to Orem′s concept, self-care is viewed as deliberate action that is goal-oriented. Orem′s model includes three types of self- care (Orem, D.E., 1985) :

1. Universal self-care behaviors are common to all human beings during all stages of the life cycle, adjusted to age, developmental state, and environmental and other factors. They are associated with life processes, with the maintenance of the integrity of human structure and functioning, and with general well-being. Self-care behaviors are the need of self-care at any age of life, which is adapted according to the age of development, environment, and various factors. This need is concerned with the lift process. In order to stay structurally, functionally, healthily and effectively as person, the need and the self-care activities just for the action demand are;

1.1 Maintenance of sufficient intake of water and food.

1.1.1 Taking sufficient air, water and food at normal demands and adapting to inside and outside and outside body changes.

1.1.2 Maintaining the stable structures and functions of the concerned body organs.

1.1.3 Seeking entertainment from breathing, drinking and eating without any danger.

1.2 Maintenance of normal voiding and excretion.

1.2.1 Managing the normal secretion of the person and of the environment.

1.2.2 Managing the excretion procedures, which in addition to keeping the normal, structures and functions and removes the excrement of the lorry.

1.2.3 Keeping personal sanitary education.

1.2.4 Keeping the environment clean and healthy.

1.3 Maintenance of a balance between activity and rest.

1.3.1 Choosing the activities for the body movement, the exercising to respond to the emotion and having relationship with other persons appropriately.

1.3.2 Perceiving and being interests in desirability of relaxation and the self-exercise.

1.3.3 Using abilities, interests, values and aspects of culture and customs which is the basis of relaxation and having self-care planning.

1.4 Maintenance of a balance between solitude and social interaction.

1.4.1 Maintaining the necessity of the equalization and the equilibrium of the development in order to be self-dependent and to

build the relationship with others to activate the person to function effectively.

1.4.2 Preparing individuals to build friendship, give love and attachment to people all around just for dependence on each other.

1.4.3 Promotion being self-confident and being members of society.

1.5 Prevention of hazards to life, functioning and well-being.

1.5.1 Interested in and perceiving hazards, which may occur.

1.5.2 Preventing the possible event, which may occur.

1.5.3 Avoiding or preventing individuals from any danger.

1.5.4 Controlling avoiding events dangerous to the life and safety.

1.6 Promotion of normalcy especially on maintain and promote the integrity of structure and functioning as well as identifying and attending to the deviations from structural and functional norm.

1.6.1 Developing and maintaining the self-perception of the self-realities.

1.6.2 Operating in activates, which promote self-development.

1.6.3 Health promotion and prevention.

1.6.4 Early detection

2. Developmental self-care behaviors are associated with human growth and developmental processes and with conditions and events occurring during various stages of the life cycle (e.g., prematurity, pregnancy) and events that can adversely affect development. There are two types of developmental self-care behavior;

2.1 The bringing about and maintenance of living conditions that support life processes and promote the process of development; that is, human progress toward higher levels of organization of human structures and toward maturation.

2.2 Provision of care can either prevent the occurrence of deleterious effects of conditions that can affect human development or so as to mitigate or overcome these effects from various conditions.

3. Health-deviation self-care behaviors are associated with genetic and constitutional defects and human structural and functional deviations and with their effects and with medical diagnostic and treatment measures and their effects such as seeking medical assistance, carrying out medical treatment, learning to live with effect of pathologic condition.

3.1 Seeking and maintaining the assistance from the health center

3.2 Perceiving interest and keeping the result of pathology according to the influence in development.

3.3 Operating according to the treatment, diagnosis, rehabilitation and prevention of the pathology which occurs effectively.

3.4 Perceiving and being interested in adaptation and prevention of discomforted from the side effects of treatment or disease.

3.5 Adapt self-conception and feature to accept self-health state and also self-necessary to be assisted from health service system.

3.6 Learning how to live with the result of pathology or with the normal state and also the result of diagnosis. The treatment according to life planning and the promotion self-development to better depends on ability at seen as the response to need. In self-care in this case the capabilities must be together with the self-care in other cases, together, in order to manage all the self-care system which prevents the problems or moderates the result of the pathology. The diagnosis and the treatment to self-development are the concepts with the role and the responsibilities of the patient or the service receiver to be done, as he is a member of the family and society. Orem's theory of self-care is a complex theory as seen that in this case one has to have capability of manipulating self-care demand in other aspects in order to manage therapeutic self-care demand to prevent or release impediment resulting from disease, diagnoses, and nursing to self development.

PART 4 : SOCIAL SUPPORT

4.1 Definition of Social support

Studies have indicated that the concept of social support is a psychosocial variable which both directly and indirectly affects health and sickness of individuals as well as their behaviors. In the course of human interaction, individuals and groups both give and receive social support. It is a reciprocal process and an interactive resource that provides comfort, assistance, encouragement, and information. Social support fosters successful coping and promotes satisfying and effective living (Pender, N.J., 1996.). Social support has been studied by many researchers so the meaning of social support is given differently, as shown below:

Social support as the fact that individuals perceive information which makes them believe that they are loved, cared for, loved, esteemed, valued, belongs to a network of communication and mutual obligation. and highly regarded by others, hence making them fell that they are part of society with bonding and warmth (Cobb, S., 1976).

Social support is defined as “an interpersonal transaction involving one or more of the following: a) emotional concern (liking, love, empathy); b) instrumental aid (goals and services); c) information (about the environment); and d) appraisal (information relevant to self-evaluation).” The reaction between persons which is composed of love and care, trust , reliance and assistance in the form of finance, materials, labor, time, and information as well as providing confidential information, learning information, and social self-appraisal and feedback for self-learning and self-assessment (House, J.S., 1981).

Social support is defined as something that nurtures individuals when they are facing with stress in life. Social support is the person′s mental assistance when the person faces stress (Schaefer, C., Coyne, J.C., and Lazarus, R.S., 1981).

Social support is defined the condition that one receives the emotional and social assistance or things or information that help him to be able to face with the illness or stress more quickly. Social support exists when individuals in a social network receives help in forms of morale, materials, information, which enables them to encounter and respond to sickness or stress in a shorter time (Thoits, P.A., 1982).

Social support refers to individual's reception of assistance and nurturing from others in their social network in such aspects as materials, services, and emotions, making individuals feel that they are loved and part of the society. Information and advice given to solve the problems can boost up the individual's spirits and increase their sense of self-worth (Lazarus, R.S. and Folkman, S., 1984).

Orem (1985) pointed out that social support refers to the way in which people are responsible for helping others in achieving expectation of personal care, which helps sustaining life, health, and a well being. By obtaining assistance from the family members and neighbors as well as the medical practitioners would create the well being within the society.

Pender (1987) noted that social support refers to a person′s sense of belonging, acceptance, love, and worth. Groups of people in the social system can support individuals in the aspects of emotion, feeling, magnitude, information, assistance, or guidance, which enable them to live in society appropriately.

In conclusion, Social support means a reciprocal relationship between people in society and is assisted when a person faces the life stress. It is included also in mental aspect when individuals believe that they are given love, care of and the reassurance of worth that they are a part of society, as well as information and help in magnitude which may be given and received between people or the public.

4.2 Type of Social support

According to the diversity of definitions of social support, it can be divided into different categories as follows:

Cobb (1976) described the dimension of social support into three types:

1. Emotional support is giving love, taking care and trust.

2. Esteem support is the information that causes a person to be valued. It means assistance to make one realize his worth and know that other people also realize and accept his worth.

3. Social integration support or network is the information that causes a person to perceive that he or she is a part of society and there is assistance for each other. It means expression to show that one is a part of a society

House (1981) proposed four types of social support:

1. Emotional support providing empathy includes giving love, trust, sympathy, understanding, caring, encouragement and respect.

2. Appraisal support is feedback information so that one can do self- evaluate and compare oneself with other people in the society and providing information for self-appraisal and assurance of agreement, appropriate belief and behavior and feedback of information to be used in self assessment with a person who is together in society.

3. Informational support means giving suggestion, advises, and information in order to solve the problem that will enable individuals to better understand and adapt to changes occurring in life and can use in coping with personal and environmental problems, such as advice, suggestion, or direction.

4. Instrumental support means giving objects, labor, and time as well as improving environment and providing tangible goods and services, or tangible aid, such as aid in kind, money, labor, time, and modifying environment.

Schaefer et al. (1981) and **Lazarus and Folkman (1984)** described social support as comprising three sub-concepts:

1. Emotional support refers to, refers to reception of love, attachment, reassurance, attention, and care. A sense of being able to rely on and confide in another person that leads to a feeling of being cared for and loved. It also means individual's ability to release their uneasy or suppressed feelings to relieve their mental sufferings, thus leading to psychological stability.

2. Informational support means information which individuals can use to solve their problems includes advice in solving problems and feedback about how one is behaving or performing. It acts as a guideline in facing with the problem, points out other resources, and suggests alternatives which can be utilized to solve the problem.

3. Tangible support means directly receiving the help that individuals need such as materials, money, or labor involves direct aid and the giving of services.

Brand and Weinert (1985) classified social support into 5 aspects and pointed out types of the social support and effects of the lack of the social support as follows:

1. Attachment is an intimate relationship that made one feels beloved and cared for. Attachment has a direct effect on emotion that means one will feel secure and warm and will not feel lonely. This type of the social support often comes from close persons such as husband, wife, or the family members. If this type of support is absent, it will lead to the feeling of loneliness.

2. Reassurance of worth means the way in which person is respected, eulogized, acceptance and complimented for one's role and ability which is acceptable within the family or friends and the society. If this type of support is absent, the person will feel useless and lacked of self confidence and self-worth.

3. Social integration means having an opportunity to participate in social activities, which creates sharing and exchange between one another as well as caring and understanding between one another. Social integration makes one realize the goal in life, sense of belonging and acceptance from the group. If this type of support is absent, it will create the feeling of social isolation and a boring life.

4. The obtaining of assistance and guidance means receiving sincere helps in terms of emotion and information from an admired or trusted person when an individual is encountering tension and crisis situation. It means assistance on suggestion or encouragement in order to solve the problem. If this type of support is absent, individuals may feel hopeless or despaired.

5. Opportunity of nurturance refers to responsibility of a person in nurturing, looking after, or helping others; and causes oneself to feel wanted by others in which they could also rely on that person. It is adult's responsibilities for the children. It makes the adults feel that they are needed and they can help others. If this type of support is absent, it will cause that person to feel meaningless, frustrate and have no goal in life.

Pender (1996) divided social support into 4 types as follows:

1. Emotional support is providing a participation support which can be a help when feeling stupefied.

2. Information support is helping others to understand of what should be done to enhance self-efficacy and benefits.

3. Instrumental aid is providing assistance in the form of labor to offer more time in doing other activities.

4. Affirmation will help individual to understand the situation and self-capacity.

Somjit Hanujarurnkul (1998) divided social support into three types as follows:

1. Informational support: providing information assistance; knowledge about the diseases and treatments; suggestions for a solution; and information about personal healthcare and behavior.

2. Emotional support: giving importance; trusts; feeling of reliance to trust on the person who provides help with his love and care.

3. Tangible support: providing direct assistance, or materials, or services.

HIV/AIDS has a direct effect on the patient. As a result, the patients will require more self-care relating to general aspect, personal development, and when facing illness. Therefore, the HIV-infected/AIDS patients will require the help from surrounded people and within the family in looking after for healthcare and prevention from other symptoms.

In summary, social support is a multidimensional concept despite its definitional diversity; the areas of agreement in the conceptualization of social support have been arrived at the four points: 1) the communication of positive effect, 2) social integration, 3) instrumental behavior, and 4) reciprocity. However, no single type of social support is uniformly effective: effectiveness depends on the appropriateness of the support acted to the requirement of the situation and person. Perceived support refers to a generalized appraisal that individuals are cared for and valued, that significant others are available to them in times of need, and that they are satisfied with the relationships they have.

Part 5: FACTOR INFLUENCING QOL AND RELATED RESEARCH

Based on literature reviews the factors related to QOL among HIV-infected/AIDS patients were divided into 4 dimensions, 17 items as following;

5.1 Socio-demographic characteristics including Age, Gender, Marital status, Education level, Occupation, Family income, Disclosure HIV status

5.2 Health and Treatment including Duration of HIV infection, Duration of ART, Current CD4 cell count, Presence of OI or comorbidity, Adherence, HIV-related symptoms, Patient participation in HIV/AIDS clinic and Hospital activity in holistic care service.

5.3 Self-care behavior

5.4 Social support

1. Age

Age of the patients is related to past experience. It is also one factor which indicates physical and intellectual ability of individuals, which affects their adaptation to the problems they are facing. Individuals who are different in age tend to use different methods to solve their problems, and they also have different perceived satisfaction with life, which in turn affects the way they deal with and solve problems. All of this affects the patient's QOL(Padilla, G., Ferrel, B., and Grant, M., 1990).

Premreitai Noimuenwai (1993) explored social support, self-care deficit and QOL in HIV-infected persons and found that age was associated with QOL of AIDS patients with statistical significance. The subjects who were adolescents were better able to cope with problems and adjust themselves, while those who were older had to deal with declined physical functions and boredom of having to fight in life, hence a low level of perceived QOL.

The older HIV/AIDS patients ($\geq$ 50 years) had diminished HRQOL in the social support and QOL domain over a period of time (Swindells, S., et al. 1999.). Moreover, The older HIV/AIDS patients had higher HRQOL in social and health conditions aspect, whereas the younger had higher HRQOL in the aspects of financial circumstances, personal support and sexual relationship.

2. Gender

The negative images of women infected with HIV are associated with drug use and promiscuity. The HIV-related stigma leads women to experiencing a greater sense of shame. In addition, the previous studies showed that HIV-positive women were suffered with AIDS-related discrimination experience more than their male counterparts (Metcalfe, K.A., Langstaff, J.E., Evans, S.J., Paterson, H.M., and Reid, J.L., 1998). Van Servellen and colleagues (2002) found that women with HIV reported more HIV symptoms and limits to functioning than their male counterparts. Moreover, compared to males, HIV-infected women experienced higher levels of physical pain and reported a higher prevalence of fatigue-related symptoms (Breitbart, W., McDonald, M.V., Rosenfeld, B., Monkman, N.D., and Passik, S.1998.). Consequently, women tended to have lower physical well-being and greater limits on practicing their daily activities. And after women were diagnosed with HIV/AIDS, they also had shorter survival times and higher death rates than men during the same period of time after their diagnosis (Brettle, R., and Leen, C., 1991). It also appears that women tend to delay seeking medical care more often than men, such that they postpone seeking medical care until they reach more advanced stages of HIV disease, when symptoms and infections become more severe (Stein, et al., 1991; Raveis, V.H., and Siegel, K., 1998.). Fleishman and Fogel (1994) found that women living with HIV/AIDS were more likely to use avoidance-coping strategies to deal with their HIV/AIDS-related problems than their male counterparts. Furthermore, women living with HIV who engaged in avoidance-coping evidenced more physical symptoms and psychological distress, such as anxiety, depression and poor adjustment. In contrast, those who utilized active coping strategies were more likely to have a lower level of psychological distress. From above rational, implying females may have lower QOL than males.

Cederfjall et al. (2001) defined that gender was one factors associated with QOL. They compared the QOL of males and females in Sweden by a self-reported generic instrument including well-being scale, health index, HIV symptom scale, sense of coherence (SOC), and Interview Schedule for social Interaction. They found that females had significantly lower HRQOL than males in the scales of well-being,

social support and SOC despite less advanced disease. However, females were significantly younger than males.

Mrus et al.(2005) using the AIDS Clinical Trials Group (ACTG) QOL 601-602 measures found that females had also significantly lower QOL than males all of the domains except overall health, with significant difference in the domains of physical functioning, pain, and energy/fatigue. However, changes in domains scores over time and in response to treatment did not differ significantly by gender, implying that changes in domain scores may be better QOL outcomes to compare between HIV-infected males and females in clinical trials than mean domain scores.

Several studies found that women with HIV were more likely to encounter difficulties in accessing health care services, including limited access to financial resources, feelings of being stigmatized, the multiple roles of care-givers and a lack of the services that are relevant to women's needs (Heath, J., and Rodway, M., 1999) Furthermore, the initial investigation of the CIQOL model (Heckman, G.T., 2003) found lower QOL in women than men.

3. Marital status

Swindells, et al.(1999) indicated that there was no association between marital status and QOL.

Manlika Thangjaroen (1991) reported that marital status was related to and could predict QOL of AIDS patients with statistical significance.

Premreitai Noimuenwai (1993) found that marital status was associated with QOL in HIV-infected persons with statistical significance. The AIDS patients who were married had better perceived QOL than those who were single, widowed, divorced, or separated.

Kitinan Sittichai (1997) investigated perceived health perceptions, spouse support and health promoting behaviors of mothers with HIV seropositive. The findings of the study indicated that perceived health perception and spousal support were positively associated with health promoting behaviors of mothers with HIV serpositive with statistical significance ($p < 0.01$). Spousal support was an important factor and a good predictor of health promoting behaviors. These findings led to a

conclusion that mothers with HIV seropositive who had a good level of perceived health perception and who received support from their spouses had better health promoting behaviors.

Sudanand Piyakul (1997) explored certain factors that affected QOL of PLWHA in Sanpatong hospital and Sansai hospital in Chiangmai province. She found that most of the patients had a moderate level of QOL. It was also found that marital status was associated with QOL with statistical significance.

Saifon Jabjai (1997) investigated QOL in the elderly with coronary heart disease. The findings showed that marital status was negatively associated with QOL with statistical significance ($p < 0.01$).

In contrast, Prapa Ratanametanont (1989), Laddawal Singhakhumfu (1989) and Sonthaya Bhichaikul (1990) found that marital status was not related to QOL in their studies.

4. Education level

Education is a factor that could develop individual's intellectuality and health. Highly educated individuals are more likely to understand problems and know what to do better than those who are not educated. This is because education enables individuals to use their thinking and knowledge to appropriately solve problems, thus making them able to live happily in society. Furthermore, education has an effect on individual's income, occupation, values, and adaptation, which in turn affect their QOL. Previous research has pointed out that the higher the educational background of individuals, the higher their QOL.

Prapa Ratanametanont (1989) studied certain factors which had an impact on the QOL of myocardial infarction patients. The findings revealed that education was positively associated with QOL with statistical significance ($p < 0.01$).

Naiyana Piphatvanitcha (1992) reported the findings which support the significance of education. In her study of the relationship among basic conditioning factors, self-care agency, and QOL in chronic renal failure patients treated with hemodialysis, she found that the personal factor of educational level was positively associated with low self-care ability with statistical significance at the 0.05 level.

Jantana Pongsomboon (1996) examined the factors which affected on health-promoting behaviors in clients with HIV infection and found that perceived health status and education were two factors that affected the health promoting behaviors of HIV-infected patients and the best co-predictors. Based on these findings, she concluded that HIV-infected patients who had well perceived health status and a high level of education were more likely to have good health promoting behaviors than those who had low perceived health status and were not highly educated.

Saifon Jabjai (1997) reported that educational level was positively associated with QOL in the elderly patients with coronary heart disease with statistical significance ($p < 0.01$).

On the other hand, Manlika Thangjaroen (1991) studied perception in AIDS and self-care agency to prevent AIDS in prostitute and found that education was not associated with QOL of AIDS patients

5. Occupation

Occupation affects individual's ways of living. It also creates satisfaction in life because occupation makes individuals develop sense of self-esteem and acceptance from others. On the other hand, a loss of occupation can change the roles and social statuses of the patients. Premreitai Noimuenwai (1993) explored social support, self-care deficit and QOL in HIV-infected persons and found that occupation was associated with QOL of AIDS patients with statistical significance.

On the contrary, Prapa Ratanametanont (1989) studied certain factors which have impact on the QOL of myocardial infarction patients.

The findings revealed that occupation was associated with QOL of the patients with no statistical significance ($p > 0.05$). This meant that the patients had similar QOL regardless of their occupation and regardless of their employment or unemployment status.

6. Family income

Income is a basic economic factor which influences ways of life of individuals. It enables individuals to meet their basic needs and allows them to benefit their family

and society, hence a feeling of happiness and satisfaction. Inevitably, their QOL will be favorably affected.

Panitha Panichacheevakul (1999) and Chutwalai Chai-aree (1990) found that income was positively associated with QOL.

Put another way, individuals who had higher income had better QOL than those whose income was lower.

Saifon Jabjai (1997) investigated QOL in the elderly patients with coronary heart disease. The findings showed that income was negatively associated with QOL with statistical significance ($p < 0.01$) and could co-predict QOL.

Finally, Monsin Yamsakun (1999) conducted a study to examine QOL of patients with coronary artery disease due to smoking with the time trade off method. It was discovered that income had an influence on QOL.

However, Kittinan Sittichai (1997) investigated health perceptions, spouse support and health promoting behaviors of mothers with HIV seropositive. The findings of the study indicated that family income was associated with health promoting behaviors of HIV-infected mothers with no statistical significance. This led to a conclusion that mothers with HIV seropositive who had high or low income had similar health promoting behaviors.

Sumontha Kabinlapat (1995) investigated stress, social support and coping behaviors of mothers with HIV-seropositive. The findings suggested that family income could not predict stress coping behaviors of postpartum mothers with HIV infection.

In other words, mothers used the same stress coping behaviors regardless of their family income.

7. Disclosure HIV status

PLWHA who received ARV might confront accompanying drug adherence and Adverse Drug Reaction (ADR) that would harm their health condition and QOL. They are also worried about maintaining a secret identity and unwanted disclosure of illness, as well as confronting stigmatization and isolation in the workplace (M. Greeff, R. Phetlhu, and L.N. Makoae. 2008). Therefore HIV-infected/AIDS patients

struggle with numerous psychosocial problems such as stigma, poverty, depression, substance abuse, and cultural beliefs which can affect their QOL not only from physical health aspect, but also from mental and social health point of view and cause numerous problems in useful activities and interests of the patients (Aranda-Naranjo, B., 2004).

8. Duration of HIV infection

The HIV-infected/AIDS has changed individual lifestyles and QOL. Empirical evidence shows that as the HIV disease progresses, QOL deteriorates (Holzemer, W.L., Spicer, J.G., Wilson, H.S., Kemppainen, J., and Coleman, C., 1999; Bourgoyne, R., and Saunders, D., 2001; Kemppainen, J.K., 2001; Penedo, F.J., et al., 2003) because of the chronic and debilitating nature of the illness, stigma and a high rise of premature death.

9. Duration of ART

Combination ART has been proven to be effective in obtaining maximal and durable suppression of HIV viral load, restoration and preservation of immunologic function, improvement of QOL, and reduction of HIV-related morbidity and mortality (Pontali, E.,2005; Floridia, M., et al., 2000; Palella, FJ., et al.,1998; Lavalle, C., et al., 2000). However, the patient's QOL is compromised by the drug regimen, through high toxicity levels or intolerance, may affect adherence. Factors such as discomfort associated with side effects and dissatisfaction at having to make lifestyle changes like increasing exercise, condom use and diet changes, play an important role in the QOL and adherence (Park, W.L.Y., Scalera, A., Tseng, A. and Rourke, S., 2002). Example, the primary among the symptomatic chronic toxicities is diarrhea, particularly with PI-based regimens. This side effect is often accompanied by other gastrointestinal complaints such as nausea, vomiting and bloating. And varieties of ARV toxicities are also of clinical significance, but may have a less lasting impact on QOL because they tend to develop acutely or may be asymptomatic.

10. Current CD4 cell count

Based on disease stage including asymptomatic, symptomatic, and AIDS or CD4 cell counts, it was discovered that the asymptomatic patients had better HRQOL than symptomatic patients in some aspects, but there were no significant difference between symptomatic and AIDS patients (Bourgoyne, R., and Saunders, D., 2001). When CD4 cells are destroyed by HIV viruses, the efficiency of the immune system decreases, and it is easier for the body to be invaded by viruses or bacteria. Moreover, HIV patients with CD4 cell counts more than 500 cells/mm^3 had higher HRQOL than the patients with lower CD4 cell counts in the aspect of physical functioning and work-role functioning (Vidrine DJ., Amick, BC., Gritz ER., and Arduino RC., 2003). However, a previous study of Griffin, et al. (1998) demonstrated that the HRQOL of male HIV/AIDS patients had no statically significant difference between all three disease stages. Franchi and Wenzel (1998) found that HRQOL score had no association with disease stages or CD4 cell counts but the occurrence of symptoms were correlated with HRQOL.

11. Presence of OI or comorbidity

There are much consistent evidence of OI or comorbidity that occurred in HIV/AIDS patients, affected to diminish HRQOL. Firstly, Sherbourne, et al. (2000) found that HIV/AIDS patients with psychiatric conditions or any type of diagnosed mood disorder had decreased HRQOL in the domain of physical health, mental health and well-being. Secondly, Kempen, et al. (2003) discovered that patients with Cytomegalovirus retinitis had reduced HRQOL in the vision domain either in new or old case diagnosed case. Belperio and Rhew (2004) demonstrated that HIV/AIDS patients with anemia had diminished HRQOL. The treatment of anemia in HIV/AIDS patients will increase HRQOL in the functioning, and energy/fatigue domains. Moreover, Fleming et al. (2004) found that HIV/AIDS patients with hepatitis C Virus (HCV) had lower HRQOL than the average USA population in all domains using SF-36.

12. Adherence

Adherence to ART has been shown to be a major determinant of biological outcome measures in HIV, including HIV ribonucleic acid (RNA) level, CD4 lymphocyte count, and genotypic resistance. Adherence has also been found to predict clinical outcome measures in HIV, including mortality, AIDS progression, and hospitalization (Hogg, R.S., et al., 1998; Bangsberg, D.R., et al., 2001).

Many studies associated with adherence have been conducted. It was found that the HIV/AIDS patients's adherence had a critical effect on clinical treatment efficacy. Mehta, et al. (1997) discovered that for success of inhibition of viral load in the blood stream, patients must have adherence between 90-100%. Many studies had defined the biological failure variously as about 20% of patients with adherence of 95% or greater, more than 50% of those with 80-94.9% adherence (Bangsberg, D.R., et al. 2000), and 80% of those with less than 80% of adherence (Paterson, D.L., et al., 2000.). The study of Gross, et al. (2001) found that the percentage of adherence decreased after the first month of ARV treatment. Mannheimer, et al. (2002) studied the influence of adherence in long term use ARV drug on patients's clinical outcome. Their results showed that after one year, the patients with adherence of 100%, 80-99%, and 0-79% had statistically significant decreased plasma HIV RNA levels by 2.77, 2.33, and 0.67 $\log_{10}$ copies/ml, whereas theirs CD4 cell counts increased by 179,159, and 53 cells/mm^3, respectively. Carballo, et al. (2004) found a high correlation between patient's adherence and QOL in the aspects of cognitive function, financial status, and medical care. And Mannheimer, et al. (2005) also demonstrated that the patients with 100% adherence have statistically significant QOL than those with lower adherence over one year, whereas those with at least 80% adherence have minimally increased QOL, but those with less than 80% adherence have vigorously decreased QOL when compared to baseline.

13. HIV-related Symptoms

The presence of symptoms related to the disease and its treatment has been proposed as the strongest indicator of impaired global QOL in HIV-positive patients (Wachtel, T., Piette, J., Mor, V., Stein, M., Fleishman, J. and Carpenter, J., 1992).

Because PLWHA are frequently asymptomatic, and clinical benefit may easily be hidden by all the difficulties derived from intervention of HAART and by ADR such as gastrointestinal intolerance, anemia, CNS effects, peripheral neuropathy, Stevens-Johnson syndrome, lipodystrophy, hyperbilirubinemia etc. Clinical presentation wide range of symptoms such as headache, dizziness, vivid dreams, sleep/mood alteration (depression), psychosis (rare), nausea, vomiting, diarrhea, severe rash and body change. If the symptoms are severe in the patient it may lead to fatal (Peterman, TA., Drotman, DP., Curran, JW., 1985) .And body changes may stigmatize patients, producing erosion of self-image and self-esteem, problems in social and sexual relations, and anxiety and depression (Colins, E., Wagner, C., Walmsley, S., 2000). Thus, parameters such as a patient's QOL should always be included when determining the success of therapy (Wu, A.W., 2000.).

14. Patient participation in HIV/AIDS clinic

QOL among 110 HIV-infected persons who visited Doi Saket Hospital, Chiang Mai by purposive sampling, using Ferrans (1997) were at high level. 66.36% of subjects were members of HIV/AIDS clinic (87.50% participated in HIV/AIDS clinic) (Surankrat Surongkaborpitra, Warunee Fongkaew, and Pikul Nantachaipun, 2003.).

15. Hospital activity in holistic care service

Thailand's HIV day-care centers (DCC) provide holistic services for PLWHA, supplementing standard clinical care. Healthcare workers, PLWHA, and community members implement DCC services in three main areas: HIV treatment support, PLWHA capacity-building, and community involvement. Objectives of these services are to assess physical, mental health, self-care capacity, PLWHA capacity for community involvement after attending DCC activities Project: Consecutive DCC participants in Chiang Rai province were surveyed in October 2004 to determine the types and impact of DCC-supported activities. It was found that seventeen DCCs provided services to 3,119 PLWHA (62% in hospital-based DCC, 38% in community-based DCC). Activities included religious, recreational, and income-generating activities; home visits; support groups; and sharing information on HIV disease. Of

477 PLWHA surveyed on the impact of attendance at DCC, most reported increased HIV knowledge (458/477; 96%) and capacity for self-care (460/477; 96%). Many reported increased knowledge and experience in teamwork (326/477; 73%), teaching community members about HIV/AIDS (323/448; 72%), working with community leaders (305/443; 69%), and maintaining employment (363/461; 79%). Benefits from DCC participation were similar across demographic groups and between community- and hospital-based DCC. PLWHA participating in the DCC model of holistic care reported increased capacity for self-care and productive engagement with local communities.

16. Self-care behavior

According to Studied of Suwanna Boonyaleepan, et al. (1999), Surankrat Surongkaborpitra, et al. (2003) and Pimsurang Taechaboonsermsak, et al. (2008) found that self-care behaviors had a significantly positive relationship with the QOL in the PLWHA.

Chutiwan Jankami (2007) also found that self-care behaviors and social support had a significantly positive relationship with the QOL in the PLWHA receiving ART in the NAPHA Project.

17. Social support

According to Orem (1985) pointed out that social support can help sustaining life, health, and a well being. By obtaining assistance from the family members and neighbors as well as the medical practitioners would create the well being within the society.

The impact of social support on QOL in PLWHA has been reported, satisfaction with social support were associated with significantly better QOL (Swindells, S., et al., 1999; Friedland, J., Renwick, R., and McColl, M., 1996).

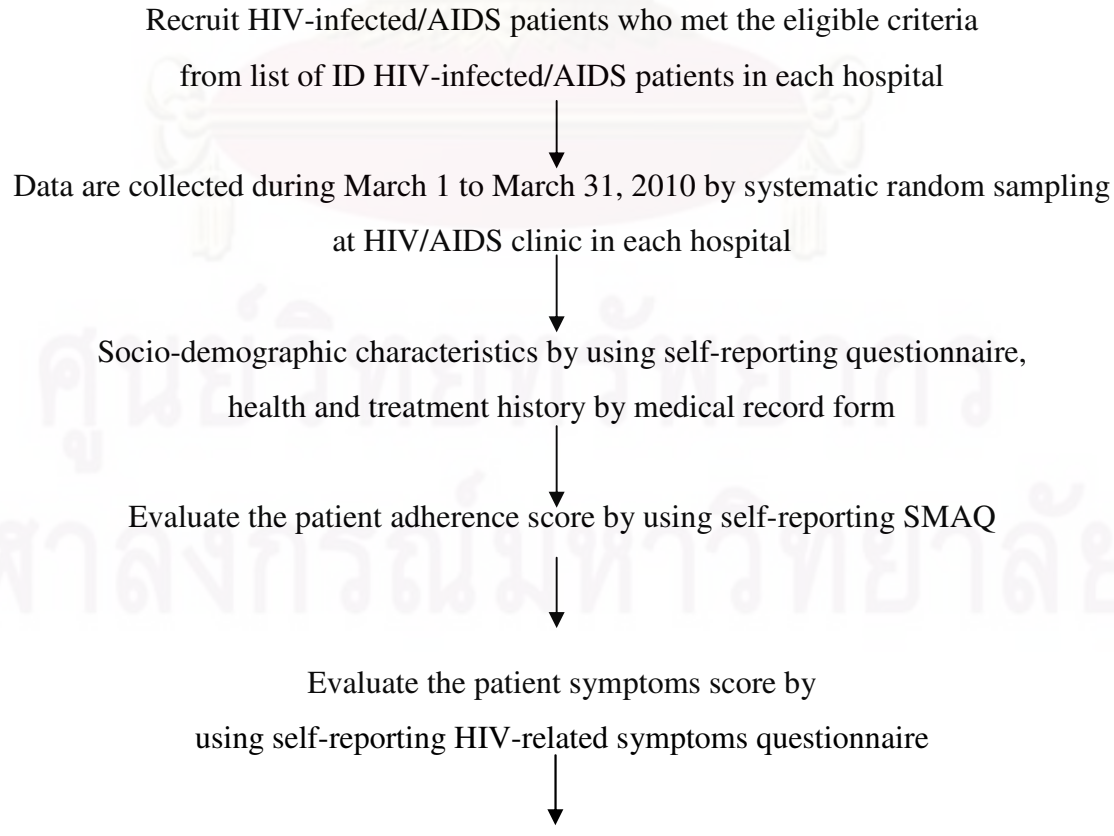
CHAPTER III
METHODOLOGY

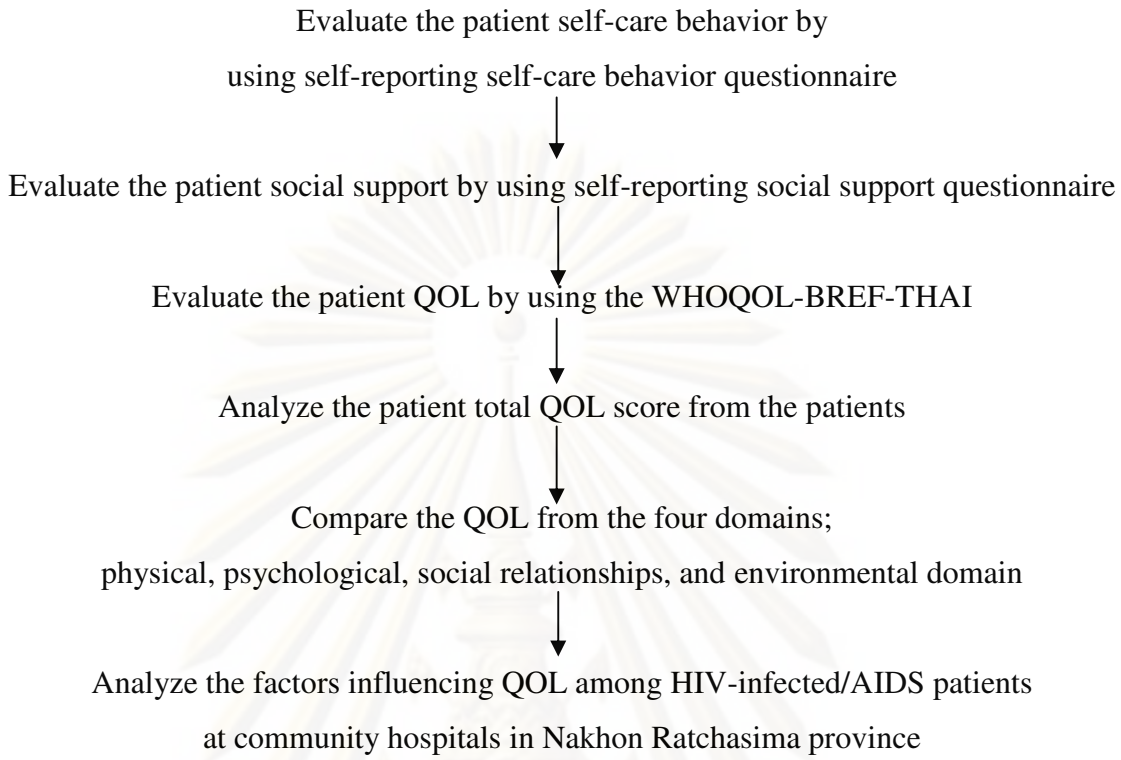
The Ethics Committee of The Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok, Thailand approved this study in March, 2010.

3.1 Research Design

A cross-sectional descriptive study was conducted to measure QOL and to examine the factors influencing QOL among HIV-infected/AID patients receiving antiretroviral therapy at community hospitals in Nakhon Ratchasima province. QOL assessment was performed using the WHOQOL-BREF-THAI. This study was conducted after the community hospital was permitted by the committee on Human Right Related to Human Experimentation. The data were collected from March 1, 2010 to March 31, 2010.

Figure 3.1 : Steps of conducting the study of factors influencing QOL among HIV-infected/AIDS patients





3.2 Research Population

The patients aged between 20-44 years with HIV-infected/AIDS patients receiving antiretroviral therapy from HIV/AIDS clinics of the Outpatient Department in community hospitals, Nakhon Ratchasima province before October 1, 2009 were eligible in the study. The total number is 3,157 HIV-infected/AIDS patients and they were classified by size of hospital as shown in the table 3.1 (Nakhon Ratchasima Provincial Health Office, 2009). However, the inclusion and exclusion criteria for participants in this study are as follows:

3.2.1 Inclusion criteria:

- Patients have been provided health care service from the HIV/AIDS clinic for at least three months continuously.
- Patients should be fully conscious.
- Patients are able to write and read Thai, and have neither severe psychiatric nor cognitive problems such as mental retardation and deafness

- Patients are willing to participate in the study and consent of the tolerance for participation in the study.

3.2.2 Exclusion criteria:

- Patients have illness that resulted in an inability to continue participation in the study.
- Patients are indicated of a desire to withdraw from the study.

Calculation of sample size

Sample size required in this study was calculated by using the Yamane's formula (Yamane, Taro, 1973)

$$\text{Sample size (n)} = \frac{N}{1 + N(e)^2}$$

at the confidence level = 95% and error = 0.05,

Sample sizes were as following;

$$\text{Sample size (n)} = \frac{3{,}157}{1 + 3{,}157(0.05)^2} = 355.01$$

Based on the above formula, the sample size should be at least 355 subjects. Finally, a samples of this study were 360 HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province, systematic sampling and selected as samples by the criteria as follow table 3.1.

Sample size for multiple regression analysis *(Appendix A)*

The sample size that is required for multiple regression analysis appears in the appendix A which was 145.

According to the sample size that we need to represent the HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province is more than 145, therefore we will use the sample size of 360 in our study.

The sample selection

Firstly, calculated samples selected by proportion of total number of HIV-infected/AIDS patients and then used systematic random sampling for samples selected from each hospital, were present as table 3.1.

Table 3.1 : Number of samples of HIV-infected/AIDS patients in each hospital

Hospital (by size)			number of patients each hospital	number of samples selected
1	Phra Thong Kham	10 beds	73	8
2	Soeng Sang	30 beds	74	8
3	Ban Lueam	30 beds	45	5
4	Kham Sakaesang	30 beds	35	4
5	Kham Thale So	30 beds	54	6
6	Nong Bunmak	30 beds	113	13
7	Kaeng Sanam Nang	30 beds	42	5
8	Chok Chai	30 beds	42	5
9	Non Daeng	30 beds	44	5
10	Wang Nam Khiao	30 beds	55	6
11	Mueang Yang	30 beds	27	3
12	Lam Thamenchai	30 beds	54	6
13	Huai Thalaeng	30 beds	130	15
14	Khon Buri	60 beds	200	23
15	Khong	60 beds	81	9
16	Non Thai	60 beds	177	20
17	Non Sung	60 beds	180	20
18	Pak Thong Chai	60 beds	110	13
19	Chum Phuang	60 beds	147	17
20	Prathai	60 beds	119	14
21	Chakkarat	60 beds	60	7
22	Dan Khun Thot	90 beds	167	19
23	Phimai	90 beds	218	25
24	Sung Noen	90 beds	121	14
25	Sikhio	90 beds	150	17
26	Bua Yai	120 beds	200	23
27	Pak Chong nana	120 beds	643	50
Total			Population=3,157	Sample=360

3.3 Research Setting

This study was conducted at HIV/AIDS clinics of the Outpatient Department of each community hospital, Nakhon Ratchasima province of Thailand.

The service of HIV/AIDS clinic offers including: pre-test and post-test counseling for HIV testing for HIV/AIDS, assessing for the need to initiate ART, initiation of ART, conducting routine blood work for monitoring patients and follow-up health care. This clinic also provides health education, mental support and other supports for HIV-infected/AIDS patients. HIV staff team followed up treatments and further assessment of patient's problems. The HIV/AIDS clinic provides services every month.

3.4 Research Instruments *(Appendix B)*

The instrument in this study was a questionnaire based on related theories and existing research. It was examined and validated by specialists in HIV/AIDS. The questionnaire was divided into five parts as follows:

Part I: Socio-demographic characteristics questionnaire

This self-reported questionnaire included age, gender, marital status, education level, occupation, and family income and disclosure HIV status.

Part II: Health and Treatment questionnaire

This questionnaire included duration of HIV infection , duration of ART, current CD4 cell count, presence of OI or comorbidity, HIV-related symptoms, adherence, patient participation in HIV/AIDS clinic and hospital activity in holistic care service. This part was also concluded Simplified Medication Adherence Questionnaire (SMAQ) and the HIV-related symptoms questionnaire.

Simplified Medication Adherence Questionnaire (SMAQ) *(Appendix C)*, the adherence information was obtained from self-reported of patients with a six-point questionnaire. The percentage of the score was calculated followed the study of Knobel, et al.(2002).

The HIV-related symptoms questionnaire, this scale is based on a list of the 16 symptoms most frequently described in published reports on HIV patients. Two more symptoms were added by an expert on HIV/AIDS at the Infectious Institute (Cleary, PD., et al., 1993; Cunningham, WE. et al., 1995; Whalen, CC., et al., 1994 cited in Phantipa Sakthong, et al., 2007), and two more symptoms were adapted by the researcher, so there were 20 items in this version used in this study. The patients were self-reported to indicate in the past two weeks both how frequently and how severely they had experienced any of the 20 symptoms. All items were scored on frequency and

severity using four-point scales. For frequency, 0 = the symptom did not occur in the previous 2 weeks; 1 = occurred 1-3 days per week, 2 = occurred 4-6 days per week, and 3 = occurs daily. And for severity, 0 = had no symptom, 1 = was not severe, 2 = was moderately severe, and 3 = was mostly severe. The scores ranged from 0 to 120 where higher summary scores indicate more symptom burden, and lower HRQOL for severity and for frequency.

Part III : Self-care behavior questionnaire

This questionnaire measures self-care behavior among PLWHA. The original instrument was developed by Damri Tariya (2006) based on Orem's self-care theory (Orem, D.E., 1991). The instrument consists of 30 items focusing on 3 aspects of needs for self-care behavior including Universal self-care behaviors 15 items, Developmental self-care behaviors 4 items and Health deviation self-care behaviors 11 items with 4 rating scales from 0 (never) to 3 (regularly) as table 3.2 and 3.3. The high score mean good self-care behavior. The Cronbach's Alpha Coefficient of this research instrument was 0.80.

Table 3.2 : Scoring criteria of self-care behavior questionnaire

Practice	Scores for positive items	Scores for negative items (5,6,7,9,16,20,26,29,30)
regularly	3	0
often	2	1
rarely	1	2
never	0	3

Table 3.3 : Interpretation of scoring of each of self-care behavior and overall self-care behavior

Level of self-care behavior	Point of scoring of			Overall self-care behavior
	Universal self-care behavior	Developmental self-care behavior	Health deviation self-care behavior	
poor	0 – 15	0 – 4	0 – 11	0 – 30
moderate	16 – 30	5 – 8	12 – 22	31 – 60
good	31 – 45	9 – 12	23– 33	61 – 90

Part IV : The social support questionnaire

This section used Brand and Weinert's Personal Resource Questionnaires: PRO 85-Part 2 (Brand, P.A. and Weinert, C., 1981) which was adjusted for PLWHA by Premreitai Noimuenwai (1993). This section evaluates perceived social supports in 5 aspects: the provision for attachment/intimacy (Intimacy), the indication that one is valued (Worth), that one is an integral part of a group (Social Integration), the availability of information, emotional, and material help (Assistance), and the opportunity for nurturance (Nurturance). This self-reported questionnaire consists of 25 items with 5 rating scales from 1 (Strongly disagree) to 5 (Strongly agree) as table 3.4 and 3.5. The high score mean good social support. The Cronbach's Alpha Coefficient of this research instrument was 0.84.

Table 3.4 : Scoring criteria of social support questionnaire

Response	Scores for positive items	Scores for negative items (4,7,10,15,16,21)
strongly disagree	1	5
disagree	2	4
neutral	3	3
agree	4	2
strongly agree	5	1

Table 3.5 : Interpretation of scoring of overall social support

Points	Level of overall social support
Less than 90	Low
91 - 110	Moderate
111-125	High

Part V : Quality of Life questionnaire (short version) of WHO (WHOQOL-BREF-THAI) (WHO, 1996)

The WHOQOL-BREF is an easy-to-use instrument which was developed by the World Health Organization (WHOQOL,1995). The WHOQOL-BREF translated into Thai by the Department of Mental Health (Suwat Mahatnirunkul, Wirawan Tuntipivatanakul, and Wanida Pumpisanchai, 1998) and validated in HIV/AIDS patients in Thailand (Phantipa Sakthong, Schommer, J., Gross, C.,

Rungpetch Sakulbumrungasil, and Wisit Prasithsirikul, 2007). The WHOQOL-BREF-THAI can be a good generic HRQOL instrument for assessing patients with HIV/AIDS because it provides acceptable internal consistency and validity. In general, internal consistency was quite good. The Cronbach's alpha ranged from 0.61 to 0.81 across four domains and the alpha value of the whole scale was 0.90. For group comparisons, alphas above 0.70 are recommended (Nunnally, JC., 1978). The reliability of this questionnaire was 0.84 (Phantipa Sakthong, Schommer, J., Gross, C., Rungpetch Sakulbumrungasil, and Wisit Prasithsirikul, 2007).

For this study, the reliability of questionnaire was 0.87. The WHOQOL-BREF-THAI questionnaire consists of 26 items; 24 items cover the four main domains (such as physical health, psychological health, social function, and environmental domain), one item for general health satisfaction and one item for overall QOL. The patients were required to rate their HRQOL in the past two weeks of four domains as follow :

Domain 1* : *Physical Domain There are 7 items in this domain to measure pain and discomfort, energy and fatigue, sleep and rest, mobility; daily life activities; dependence on medications or treatments; and work capacity. The physical domain includes three facets: pain and discomfort; energy and fatigue; and sleep and rest.

Domain 2* : *Psychological Domain There are 6 items in this domain to measure positive feelings: thinking, learning, memory and concentration; self-esteem; bodily image and appearance; negative feelings; spirituality, religion and personal beliefs.

Domain 3* : *Social relationships domain There are 3 items in this domain include personal relationships, social support and sexual activity.

Domain 4* : *Environmental domain There are 8 items in this domain measuring physical safety and security; home environment; financial resources; health and social care (accessibility and quality); opportunities for acquiring new information and skills; participation in and opportunities for recreation; and leisure activities; and physical environment.

Scoring criteria The total number of items in the questionnaire was 26. Of these, 23 had positive meaning; that is, items 1, 3-8, 10 and 12-26. Three items had negative meaning-items 2, 9, and 11. Each item was arranged in a 5-point Likert-scale with the meaning of each response as table 3.6 and 3.7:

1 = you never feel like that at all, you were very unsatisfied, or you feel very bad.

2 = you feel like that once in a while or a little bit, you were unsatisfied, you feel bad.

3 = you feel so-so, you feel moderately satisfied, or you feel moderately bad.

4 = you feel like that often or a lot, you feel satisfied, or you feel good.

5 = you always feel like that, you feel very satisfied, or you feel very good.

Table 3.6 : Scoring criteria of WHOQOL-BREF THAI questionnaire

Response	Scores for positive items	Scores for negative items (2,9,11)
1	1	5
2	2	4
3	3	3
4	4	2
5	5	1

Table 3.7 : Interpretation of scoring of QOL

The scoring for each of the domains ranged from 26 to 130 points according to the calculation of WHOQOL-BREF-THAI and the total scores of QOL ranged from 0 to 130. The interpretation of the QOL scores was based on the mean scores which were divided into three levels (Suwat Mahatnirunkul, Wirawan Tuntipivatanakul, and Wanida Pumpisanchai, 1998) as follow :

Level Of QOL	Point of scoring of four domain				Total QOL
	Physical (2,3,4,10,11,12,24)	Psychological (5,6,7,8,9,23)	Social relationships (13,14,25)	Environmental (15,16,17,18,19,20,21,22)	
poor	7-16	6-14	3-7	8-18	26-60
moderate	17-26	15-22	8-11	19-29	61-95
good	27-35	23-30	12-15	30-40	96-130

VALIDITY AND RELIABILITY OF INSTRUMENT

Validity of the questionnaires

The research instrument in this study is composed of personal socio-demographic characteristics questionnaire, Simplified Medication Adherence Questionnaire (SMAQ), HIV-related symptoms questionnaire, Self-care behavior questionnaire, Social support questionnaire and WHOQOL-BREF-THAI questionnaire.

Those questionnaires were submitted for examination their validity of contents and language by four experts including a physician, two pharmacists and a nurse specialist in area of HIV/AIDS. The questionnaires were revised according to the comments and suggestions of these experts.

Reliability of the questionnaires

In this study, the revised questionnaires were initially tried on 30 HIV-infected/AIDS patients living at Non Thai hospital, Nakhon Ratchasima province and tested for the understanding, clarity of the questions and the time needed for answering. The completed questionnaires were examined carefully and were tested for reliability by using the Cronbach's alpha coefficient formula (Puangrat Thaweerat, 1995).

$$\alpha = \left[\frac{n}{n-1}\right]\left[1 - \frac{\sum si^{2}}{s_{0}^{2}}\right]$$

Where α = co efficiency of consistency confidence

n = number of question in the questionnaire

$\sum s_i^{2}$ = question variable

s_0^{2} = sum of question variable

Cronbach's alpha should more than 0.70 which is the acceptable value. The reliability results from 30 persons were as follow:

- Simplified Medication Adherence Questionnaire (SMAQ) = 0.86
- HIV-related symptoms questionnaire = 0.89
- Self-care behavior questionnaire = 0.80
- Social support questionnaire = 0.84
- WHOQOL-BREF-THAI questionnaire. = 0.87

In this study reliability of the instruments higher than 0.7 was considered to be appropriate (Polit, D.F., Beck, C. T., and Hungler, B.P., 2001).

3.5 Data Collection

Data collection was conducted from March 1, 2010 to March 31, 2010 by the researcher and/or research staff who was a HIV- Coordinator of each hospital. The process including in data collection were as follows:

1. Follow up approval from the committee on Human Right Related to Human Experimentation, Chulalongkorn University.
2. The researcher delivered an introductory letter requesting cooperation on data collection to the director of Nakhon Ratchasima Provincial Public Health Office. After that, the researcher sent the letters to the director of each community hospital asking for permission to conduct research.
3. After the request was passed through official channels, the researcher had a meeting with the HIV- Coordinators from each community hospital at Provincial Public Health Office and explained the objective and procedures of this study, and asked for the permission of data collection and cooperation and also train the research staff.
4. For the hospital, the researcher and/or research staff of each community hospital reviewed the list of patient and recruit the ID patients who met the inclusion criteria.
5. For the HIV/AIDS clinic, the researcher and/or research staff of each community hospital met the subjects at the HIV/AIDS clinic day care and requested their cooperation in the collection of data.
6. Before collecting data, the researcher and/or research staff established good relationships with the HIV-infected/AIDS patients politely by talking; introducing herself or himself; explaining the objective, the expected outcome, data collection process, and the subjects′s right in participation in this study, then provided the consent form and explained that their consent was needed for participation.
7. When the subjects willingly agreed to participate in the study, the researcher and/or research staff started systematic random sampling and collecting patient's data about five parts of questionnaire.
8. For the private group room, after the subjects agreed to participate in the study, the researcher and/or research staff began to explain in detail about the answering procedure, then using self–reported forms, except the data of duration of HIV infection, duration of ART, current CD4 cell count, presence of OI or comorbidity

obtain from the medical record form and the data of patient participation in HIV/AIDS clinic, hospital participation in holistic care service obtain by the documentations of HIV/AIDS clinic.

9. This procedure would take approximately 30-45 minutes. There was the researcher and/or research staff for assisting them.

10. All responded questionnaires were collected and arranged for statistical analysis.

3.6 Protection of Human Subjects

The subjects were informed that their decision to participate in this study totally depended on their willingness, and they could agree or refuse to participate in the study on their own will. When the patients expressed willingness to participate in the study, they were asked to sign the consent form. During the study, the report could be stopped at anytime without any impact on medical services that the patients were receiving from the hospitals. The subjects were also informed about the protection of their rights and were assured that their responses would be treated with strict confidentiality and would be used for research purposes only. The subject was also informed that some information would be recorded by writing to ensure correctness and completeness. The data would be presented in overall picture without identifying each subject individually and there would be no harm or impact on the patients.

3.7 Data Analysis

The data from questionnaires and medical record form were analyzed by using SPSS: Statistical Package for the Social Sciences statistical software (SPSS, Inc., Chicago, version 16) as follows:

1. Frequency, percentage, mean, standard deviation, minimum and maximum were used for describe socio-demographic characteristics, health and treatment, self-care behavior, social support and QOL.
2. Pearson's Product Moment Correlation Coefficient was used for examine the relationship among socio-demographic characteristics, health and treatment, self-care behavior, social support and QOL.
3. Multiple Regression Analysis was also performed to test predictability selecting the best predictor of QOL.

CHAPTER IV
RESULTS

This study aimed to measure QOL and to examine factors influencing QOL of 360 HIV-infected/AIDS patients from 24 community hospitals in Nakhon Ratchasima province. Although, the total of numbers of community hospital were 27 hospitals but 3 hospitals could not participated in this study due to the burden of their workload. Therefore, the numbers of HIV-infected/AIDS patients were showed in table 4.1.

Table 4.1 : Number of study samples of HIV-infected/AIDS patients in each hospital

Hospital (by size)			number of HIV-infected/AIDS patients each hospital	number of study patients	% of study patients
1	Phra Thong Kham	10 beds	73	9	2.5
2	Soeng Sang	30 beds	74	0	0
3	Ban Lueam	30 beds	45	4	1.1
4	Kham Sakaesang	30 beds	35	5	1.4
5	Kham Thale So	30 beds	54	8	2.2
6	Nong Bunmak	30 beds	113	15	4.2
7	Kaeng Sanam Nang	30 beds	42	6	1.7
8	Chok Chai	30 beds	42	7	1.9
9	Non Daeng	30 beds	44	8	2.2
10	Wang Nam Khiao	30 beds	55	10	2.8
11	Mueang Yang	30 beds	27	5	1.4
12	Lam Thamenchai	30 beds	54	9	2.5
13	Huai Thalaeng	30 beds	130	5	1.4
14	Khon Buri	60 beds	200	9	2.5
15	Khong	60 beds	81	10	2.8
16	Non Thai	60 beds	177	45	12.5
17	Non Sung	60 beds	180	23	6.4
18	Pak Thong Chai	60 beds	110	16	4.4
19	Chum Phuang	60 beds	147	19	5.3
20	Prathai	60 beds	119	16	4.4
21	Chakkarat	60 beds	60	9	2.5
22	Dan Khun Thot	90 beds	167	20	5.6
23	Phimai	90 beds	218	27	7.5
24	Sung Noen	90 beds	121	0	0
25	Sikhio	90 beds	150	20	5.6
26	Bua Yai	120 beds	200	0	0
27	Pak Chong nana	120 beds	643	55	15.3
Total			3,157	360	100

In this chapter, the findings of the study were presented in the 4 following sections including 1)Baseline characteristics 2)Total QOL and each domain of QOL of HIV-infected/AIDS patients 3)Model to predict the total QOL score and 4)The factors influencing total QOL score.

4.1 Baseline characteristic of the subjects in term of socio-demographic, health and treatment, self-care behavior and social support

4.1.1 Socio-demographic characteristics

The subjects were ranged in age from 23-44 years, with the mean age was 36.78 ± 4.5 years. The largest group of subjects, or 35.8%, were between 36-40 years old. In addition, 0.6%, 8.6%, 30.6% and 24.4% were between 20-25 years old, between 26-30 years old, between 31-35 years old, and between 41-44 years old, respectively.

Considering of subject gender, 61.1% was female and 38.9% was male. Regarding to marital status, the majority of the subjects, or 54.7% were coupled and stay together, 9.2% were coupled but no stay together, 15.8% were single, and 20.3% were widowed/divorced/separated.

In terms of education, the majority of the subjects, or 67.5%, had completed primary education. Furthermore, 28.1% had a secondary education level, 1.7% had a college diploma/high vocational diploma and 0.6% had a bachelor degree. It was worth noting that 2.2% of the subjects were illiterate, as shown in Table 4.1.

The insurance scheme provided from the majority of the subjects, or 90.8% of Universal Health Coverage Scheme (UC), 7.8% of Social Security Scheme (SSS), 0.8% of Civil Servant Medical Benefit Scheme (CSMBS) and 0.6% by self payment.

For occupation, 48.3% were wage earners or laborers, 32.2% were agriculturists, 8.9% were business owner, 3.9% worked in the private company, 0.6% were government officer and 6.1% of subjects were unemployed.

For monthly family income, the subjects earned approximately 4,400 baht per month on average (Mean=4,398.6, SD=4,614.65). However, almost half of subjects, or 46.4% earned between 1,001-3,000 baht per month, while 25.8% earned between 3,001-5,000 baht per month, 17.2% earned between 5,001-3,000 baht per month.

Furthermore, 6.4%, earned between 501-1,000 baht and 3.9 % have a monthly family income more than 10,000 baht on average. 0.3% of the subjects did not have family income. In summary, 62.8% do not have sufficient income. For the disclosure status to all of family member, 52.2% of the patients were disclosed. All of the socio-demographic characteristics were showed in table 4.2

Table 4.2 : Number of HIV-infected/AIDS patients classified by socio-demographic characteristics

Socio-demographic characteristics	Number	%	Mean ± SD	Median (min-max)
Age (years)	360	100	36.78±4.5	37 (23-44)
20-25	2	0.6		
26-30	31	8.6		
31-35	110	30.6		
36-40	129	35.8		
41-44	88	24.4		
Gender				
Male	140	38.9		
Female	220	61.1		
Marital status				
Couples and stay together	197	54.7		
Couples but no stay together	33	9.2		
Single	57	15.8		
Widowed/Divorced/Separated	73	20.3		
Educational level				
Illiterate	8	2.2		
Primary education	243	67.5		
Initial Secondary education	63	17.5		
End Secondary education	38	10.6		
College diploma/High vocational diploma	6	1.7		
Bachelor degree	2	0.6		
Insurance scheme				
Self payment	2	0.6		
Universal Health Coverage Scheme (UC)	327	90.8		
Civil Servant Medical Benefit Scheme (CSMBS)	3	0.8		
Social Security Scheme (SSS)	28	7.8		

Table 4.2 (continued)

Socio-demographic characteristics	Number	%	Mean± SD	Median (min-max)
Occupation				
Agriculturist	116	32.2		
Business owner	32	8.9		
Private company	14	3.9		
Government officer	2	0.6		
Wage earner or laborer	174	48.3		
Unemployed	22	6.1		
Family Income (baht per month)	360	100	4398.61± 4614.7	3000 (0-50000)
0-500	1	0.3		
501-1000	23	6.4		
1001-3000	167	46.4		
3001-5000	93	25.8		
5001-10000	62	17.2		
>10000	14	3.9		
Family Economic status				
Sufficiency	127	35.3		
Insufficiency	226	62.8		
Spare	7	1.9		
Disclosure status to all of family member				
Yes	188	52.2		
No	172	47.8		

4.1.2 Health and Treatment

These data were obtained from the medical record form by researcher or HIV-coordinator of each hospital. Overall health and treatment data of patients were showed in table 4.3.

The number of years of HIV diagnosis of the subjects when they were informed about their HIV infection was 6.9±4.0 years. The majority or 42.2%of the subject were informed about their infection status between 1-5 years. The duration of HIV infection; between 6-10 years, 11-15years, 16-20 years and higher than 20 years were 40.3%, 14.7%, 2.5% and 0.3 % respectively.

The average duration of ART was 4.05±2.2 years. Most of the subjects, or 72.5%, had received ART between 0.5-5 years. The duration of ART between 6-10 years and higher than 10 years was 26.7% and 0.8%, respectively.

The average of CD4 cell count was 375.54±194.9 cells/mm^3. The CD4 cell count was similar frequency as follow; the CD4 cell count between 0-200 cells/mm^3, 2001-350 cells/mm^3, 351-500 cells/mm^3 and higher than 500 cells/mm^3were 19.4%, 31.1%, 25.3% and 24.2%, respectively.

The patients had presence of OI or comorbidity 42.8% (57.2% were not presence).

Concerning the average adherence score was 89.95±9.5%. Most of patient, or 70.3%, had adherence not more than 95% as they should have had. The patients had fully adherence score only 29.4%.

Regarding to, the HIV-related symptoms score indicating that in the past two weeks both how frequently and how severely they had experienced, it was found that on average the symptom score was 16.65± 14.3 points from total score were 120 points. Only 8.9% of them had no symptom.

Regarding to the patients participation in HIV/AIDS clinic, the findings revealed that only 15.0% had received drug only. The patients who were a member of health education group were 37.2%. As the patients member plus home visited were 34.4% and the patient who was a leader of club were 13.3%.

Concerning the hospital activity in holistic care service, the results showed that 85% of patients were treated at hospital participated holistic care center. The patients who were treated at hospital non-participated holistic care center but have club were 8.1%. And the patients who were treated at hospital non-participated and non-club at HIV/AIDS clinic were 6.9%.

Table 4.3 : Number of HIV-infected/AIDS patients classified by Health and Treatment characteristics

Health and Treatment	Number	%	Mean± SD	Median(min-max)
Duration of HIV infection (years)	360	100	6.9±4.0	6 (1-22)
1-5	152	42.2		
6-10	145	40.3		
11-15	53	14.7		
16-20	9	2.5		
>20	1	0.3		
Duration of Antiretroviral Therapy (years)	360	100	4.05±2.2	4 (0.5-12)
0.5-5	261	72.5		
6-10	96	26.7		
>10	3	0.8		
Current CD4 cell count (cells/mm^3)	360	100	375.54±194.9	348 (10-960)
0-200	70	19.4		
201-350	112	31.1		
351-500	91	25.3		
>500	87	24.2		
Presence of OI or Comorbidity	360	100		
Yes	154	42.8		
No	206	57.2		
Adherence score (%)	360	100	89.95±9.5	92.53 (49.64-100)
≤95	253	70.3		
>95-99.999	1	0.3		
100	106	29.4		
HIV-related symptoms score (Total scores=120)	360	100	16.65±14.3	13 (0-80)
0	32	8.9		
1-20	215	59.7		
21-40	88	24.4		
41-60	19	5.3		
61-80	6	1.7		
Patients participation in HIV/AIDS clinic	360	100		
Receiving drug only	54	15.0		
Member (joined group of health education)	134	37.2		
Member and home visited	124	34.4		
Leader	48	13.3		

Table 4.3 (continued)

Health and Treatment	Number	%	Mean±SD	Median(min-max)
Hospital activity in holistic care service	360	100		
Hospital participated holistic care center	306	85.0		
Hospital non-participated holistic care center but have club	29	8.1		
Hospital non-participated holistic care center and non-club	25	6.9		

4.1.3 Self-care behavior

The results of self-care behavior were presented in table 4.4.1. It was found that the overall score of self-care behavior ranged from 41-89 with the mean 72.91±7.9.

Table 4.4.1 : The score of self-care behavior of HIV-infected/AIDS patients classified by self-care behavior characteristics

Self-care behavior (N=360)	Mean	(min-max)	SD	Cronbach's alpha
Overall Self-care behavior score	72.91	(41-89)	7.9	0.80
Universal Self-care	35.47	(15-45)	4.6	0.83
Developmental Self-care	9.85	(5-12)	1.5	0.76
Health Deviation Self-care	27.59	(41-89)	4.3	0.82

The results of the level of self-care behavior score appears in table 4.4.2. The majority of HIV-infected/AIDS patients had good level of self-care behavior (93.9%), followed by moderate level (6.1%).

In each characteristic of self-care behavior, it was found that the majority of HIV-infected/AIDS patients in universal self-care behavior, developmental self-care behavior, or health deviation self-care behavior were in the good level.

Table 4.4.2 : The score of self-care behavior of HIV-infected/AIDS patients classified by level of self-care behavior

Level Of self-care behavior	Self-care behavior characteristics						Overall self-care behavior	
	Universal		Developmental		Health deviation			
	Number of patients	%	Number of patients	%	Number of patients	%	Number of patients	%
Poor	1	0.3	0	0	0	0	0	0
Moderate	49	13.6	67	18.6	48	13.3	22	6.1
Good	310	86.1	293	81.4	312	86.7	338	93.9
Total	360	100.0	360	100.0	360	100.0	360	100.0

4.1.4 Social support

The results of social support were presented in table 4.5.1 and 4.5.2. It was found that the scores of social support ranged from 68-121 with the mean 95.27±9.2.

Table 4.5.1 : The score of social support of HIV-infected/AIDS patients classified by social support characteristics

Social support (N=360)	**Mean**	**(min-max)**	**SD**	**Cronbach's alpha**
Overall Social support score	95.27	(68-121)	9.2	0.84
Intimacy	19.79	(10-25)	2.7	0.86
Worth	17.73	(11-25)	2.7	0.85
Social Integration	19.40	(12-25)	2.4	0.89
Assistance	19.12	(12-25)	2.3	0.78
Nurturance	19.22	(10-25)	2.7	0.92

The results of the level of social score appeared in table 4.5.2.The majority of HIV-infected/AIDS patients had moderate level of social support (62.8%), followed by low level (30.6%) and high level (6.7%).

Table 4.5.2 : The score of social support of HIV-infected/AIDS patients classified by level of social support

Level of social support		Number	%
Low	(<90 points)	110	30.6
Moderate	(91-110 points)	226	62.8
High	(111-125 points)	24	6.7
	Total	360	100

4.2 Total QOL and each domain of QOL of HIV-infected/AIDS patients

The WHOQOL-BREF-THAI consists of 26 items, including 24 items in four domains (physical, psychological, social relationship, and environmental), one item for general QOL, and one item for health-related QOL. There are seven items in the physical domain, six items in the psychological domain, three items in the social domain, and eight items in the environmental domain as table 4.6.1.

Table 4.6.1 : The score of QOL of HIV-infected/AIDS patients classified by QOL domain

WHOQOL-BREF-THAI (N=360)	**Mean**	**(min-max)**	**SD**	**Cronbach's alpha**
Total score (26 items)	84.74	(44-110)	11.0	0.87
Physical domain (7 items)	24.98	(9-35)	3.5	0.89
Psychological domain (6 items)	22.31	(9-30)	3.8	0.85
Social relationships domain (3items)	10.58	(3-15)	1.9	0.82
Environmental domain (8 items)	26.87	(12-40)	4.0	0.80
General health satisfaction (1 item)	3.65	(1-5)	1.0	
Overall QOL (1 item)	3.66	(1-5)	0.7	

The QOL of HIV-infected/AIDS patients was divided into the following three levels as table 4.6.2.

Table 4.6.2 : The score of QOL of HIV-infected/AIDS patients classified by level of QOL

Level of QOL	Physical domain		Psychological domain		Social relationships domain		Environmental domain		Total QOL	
	Number of patients	%	Number of patients	%	Number of patients	%	Number of patients	%	Number of patients	%
Poor	6	1.7	15	4.2	22	6.1	6	1.7	10	2.8
Moderate	235	65.3	158	43.9	219	60.8	277	76.9	296	82.2
Good	119	33.1	187	51.9	119	33.1	77	21.4	54	15.0
Total	360	100	360	100	360	100	360	100	360	100

The results showed that the majority (82.2%) of patients had total QOL score at the moderate level. The results of the number of HIV-infected/AIDS patients classified by level of QOL and four domains of QOL scores were as follows:

1. **Physical domain**: health status, rest and relaxation, ability to perform daily living activities, and ability to work .The results showed that the majority (65.3%) of patients had physical domain score at the ***moderate*** level.

2. **Psychological domain**: life goal, meaning of life, concentration on work, sense of security, satisfaction with self image and appearance, and self-satisfaction. The results showed that the majority (51.9%) of patients had psychological domain score at the ***good*** level.

3. **Social relationship domain**: interpersonal relationships, social support, and sexual activities. The results showed that the majority (60.8%) of patients had social relationship domain score at the ***moderate*** level.

4. **Environmental domain**: income, satisfaction with living condition, safety and stability, access to public health services, access to information, and transportation. The results showed that the majority (76.9%) of patients had environmental domain score at the ***moderate*** level.

Because the number of items were different in each domain. The domain scores in table 4.6.1were calculated by dividing the mean of the scores with all items in each domain. Thus, the domain scores would have the same range, from 1 to 5. The higher score indicated the better QOL in each domain. It was found that the subjects had the highest mean score in the psychological domain were presented in table 4.6.3.

Table 4.6.3 : The mean of QOL score divided by the number of items among each domain of QOL

WHOQOL-BREF-THAI (N=360)	**Mean (min-max)**	**SD**
Physical domain (7 items)	3.57 (1-5)	0.6
Psychological domain (6 items)	3.72 (1-5)	0.6
Social relationships domain (3 items)	3.53 (1-5)	0.6
Environmental domain (8 items)	3.36 (1-5)	0.5

4.3 Model to predict the total QOL score

Bivariate analysis (*Appendix D*) showed that the factors which were related to QOL of the subjects were Disclosure HIV status, Duration of HIV infection, Duration of ART, Current of CD4 cell count, Presence of OI or comorbidity, Adherence score, HIV-related symptoms score, Patients participation in HIV/AIDS clinic, Hospital activity in holistic care service, Self-care behavior and Social support.

Appendix E showed the correlation matrix among all 19 independent variables and total QOL. It was found that the social support overall score had significantly largest correlation with total QOL score ($r = 0.478$, $p < 0.01$). It meant that the more social support overall score, the more total QOL score.

From *Appendix F*, there were 19 independent variables in the model. The dependent variable was a total QOL score. The independent variables were the age, gender (female), marital status (widowed/divorced/separated), education level (more than primary education), occupation (stable occupation), family income, disclosure HIV status, duration of HIV infection, duration of ART, current CD4 cell count, no presence of OI or comorbidity, adherence, HIV-related symptoms, patients participation in HIV/AIDS clinic (patient member, patient leader), hospital activity in holistic care service (hospital non-participated holistic center but have club, hospital non-participated holistic center and non-club), self-care behavior overall score and social support overall score.

To predict the total QOL score from 19 predictors, the results showed that

1) p-value from Pearson's Correlation is significantly different ($p = 0.000 < \alpha\ 0.05$). Reject null hypothesis. Therefore, the predictors in this model were significantly correlated with total QOL score.

2) Pearson's Correlation (r) is 0.607.

3) Direction is positive.

4) Coefficient of Determination (R^2) is 0.368

The model summary showed that there were a medium significantly relationship between the predictors and the QOL total score in this model (r=0.607,p=0.000). The variance within the predictors can explain 36.8% of variance within the QOL total score as in the table 4.7.

Table 4.7 : Model Summary of total QOL score prediction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.607[a]	0.368	0.333	8.974	0.368	10.438	19	340	0.000

a. Predictors: (Constant), social support overall score, family income, no OI or comorbidity, widowed/divorced/separate group, duration of ART, stable occupation, hospital non-participated holistic center and non-club, disclosure HIV status, hospital non-participated holistic center but have club, adherence score, patient member, female, age, HIV-related symptoms score, CD4 cell count, more than primary education, self-care behavior overall score, duration of HIV infection, patient leader

b. Dependent Variable: total QOL score

The hierarchical stepwise multiple regression analysis statistics were used to explore the relationships (predicted) of total QOL score and the 19 independent variables as follows; age, female, widowed/divorced/separated, more than primary education, stable occupation, family income, disclosure HIV status, duration of HIV infection, duration of ART, current CD4 cell count, presence of OI or comorbidity, adherence score, HIV-related symptoms score, patient member, patient leader, hospital non-participated holistic center but have club, hospital non-participated holistic center and non-club, self-care behavior score and social support overall score. We found that the 5 most significant variables which predicted QOL total score were: **social support score**(β=0.387), **HIV-related symptoms score** (β=-0.226),**hospital non-participated holistic center and non-club** (β=-0.134), **self-care behavior score** (β=0.100) and **widowed/divorced/separated** (β=-0.097), respectively as showed in table 4.8.

Table 4.8 : Coefficients of total QOL score prediction model

Model	Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
1		b	SE	Beta			Tolerance	VIF
	(Constant)	17.288	8.294		2.084	0.038		
	age	0.181	0.113	0.074	1.608	0.109	0.871	1.148
	gender(female=1,male=0)	0.309	1.056	0.014	0.293	0.770	0.844	1.185
	widowed/divorced/separated	-2.657	1.214	**-0.097**	-2.189	***0.029**	0.939	1.065
	more than primary education	-0.039	1.126	-0.002	-0.034	0.973	0.836	1.197
	stable occupation	0.213	1.015	0.010	0.210	0.834	0.875	1.142
	family income	0.000056	0.000	0.024	0.522	0.602	0.902	1.109
	disclosure HIV status	1.287	1.004	0.059	1.282	0.201	0.892	1.121
	duration of HIV infection	-0.207	0.145	-0.075	-1.433	0.153	0.677	1.478
	duration of ART	0.254	0.256	0.052	0.993	0.322	0.688	1.454
	CD4 cell count	0.004	0.003	0.075	1.596	0.111	0.845	1.184
	Presence of OI or comorbidity (no=1,yes=0)	1.317	0.989	0.059	1.332	0.184	0.935	1.069
	adherence score	0.064	0.053	0.055	1.200	0.231	0.881	1.135
	HIV-related symptoms score	-0.174	0.036	**-0.226**	-4.815	****0.000**	0.844	1.184
	patient member	1.678	1.437	0.069	1.168	0.244	0.533	1.875
	patient leader	2.826	1.928	0.088	1.466	0.144	0.521	1.921
	hospital non-participated holistic center but have club	-0.712	1.807	-0.018	-0.394	0.694	0.925	1.081
	hospital non-participated holistic center and non-club	-5.771	1.943	**-0.134**	-2.971	****0.003**	0.917	1.090
	self-care behavior overall score	0.139	0.069	**0.100**	2.012	***0.045**	0.759	1.317
	social support overall score	0.463	0.055	**0.387**	8.355	****0.000**	0.865	1.156
	R	0.607						
	R^2	0.368						
	Adj R^2	0.333						
	R^2 Change	0.368						
	F Change	10.438						
	Sig	0.000						

a Dependent Variable: QOL total score

* significant level at $p < 0.05$

** significant level at $p < 0.01$

Finally, the model yield the QOL total score prediction equation as the followings:

QOL total score = 17.288 + 0.181 age + 0.309 female **- 2.657 widowed/ divorced/separated**** - 0.039 more than primary + 0.213 stable occupation + 0.000056 family income + 1.287 disclosure HIV status - 0.207 duration of HIV infection + 0.254 duration of ART + 0.004 CD4 cell count + 1.317 no OI or comorbidity + 0.064 adherence score **- 0.174 HIV-related symptoms score**** + 1.678 patient member + 2.826 patient leader - 0.712 hospital non-participated holistic center but have club - **5.771 hospital non-participated holistic center and non-club**** + **0.139 self-care behavior overall score*** **+ 0.463 social support overall score****

The equation for predict Z score is as follows;

$Z_{\text{QOL total score}}$ = $0.074\ Z_{\text{age}} + 0.014\ Z_{\text{female}} - 0.097\ Z_{\text{widowed/divorced/separated}} - 0.035\ Z_{\text{more than primary}} + 0.010\ Z_{\text{stable occupation}} + 0.024\ Z_{\text{family income}} + 0.059\ Z_{\text{disclosure HIV status}} - 0.075\ Z_{\text{duration of HIV infection}} + 0.052\ Z_{\text{duration of ART}} + 0.075\ Z_{\text{CD4 cell count}} + 0.059\ Z_{\text{no OI or comorbidity}} + 0.055\ Z_{\text{adherence score}} - 0.226\ Z_{\text{HIV-related symptom score}} + 0.069\ Z_{\text{patient.member}} + 0.088\ Z_{\text{patient leader}} - 0.018\ Z_{\text{hospital non-participated holistic center}} - 0.134\ Z_{\text{hospital non-participated holistic center and non-club}} + 0.100\ Z_{\text{self-care behavior overall score}} + 0.387\ Z_{\text{social support overall score}}$

* significant level at $p < 0.05$
** significant level at $p < 0.01$

It could be concluded that social support overall score (p=0.000), HIV-related symptoms score (p=0.000), hospital non-participated holistic center and non-club (p=0.003), self-care behavior overall score (p=0.045) and widowed/divorced/separated (p=0.029) were the significant predictors of total QOL score in the model with R^2 = 0.368. The results showed that 36.8 percent variance of total QOL score could be explained by variance of all 19 predictors.

4.4 The influencing factors of each domain of QOL

Appendix G showed the further analyses on the 19 independent variables and each domain of QOL including physical, psychological, social relationship and environmental domain.

4.4.1 The physical domain of QOL

The multiple regression analysis statistics were used to explore the relationships (predicted) of QOL physical domain score and the 19 independent variables. We found that the 5 most significant variables which could predict QOL physical domain score were: **social support overall score** (β=0.295), **HIV-related symptoms score** (β= -0.254), **duration of ART** (β=0.146), **CD4 cell count** (β=0.103) and **no OI or comorbidity** (β=0.093), respectively.

4.4.2 The psychological domain of QOL

The multiple regression analysis statistics were used to explore the relationships (predicted) of QOL psychological domain score and the 19 independent variables. We found that the 3 most significant variables which could predict QOL psychological domain score were: **social support overall score** (β=0.372), **HIV-related symptoms score** (β = -0.228) and **widowed/divorced/separated** (β = -0.115), respectively.

4.4.3 The social relationship domain of QOL

The multiple regression analysis statistics were used to explore the relationships (predicted) of QOL social relationship domain score and the 19 independent variables. We found that the 4 most significant variables which could predict QOL social relationship domain score were: **social support overall score** (β=0.309), **patient leader** (β=0.205), **patient member** (β=0.156) and **disclosure HIV status** (β=0.105), respectively.

4.4.2 The environmental domain of QOL

The multiple regression analysis statistics were used to explore the relationships (predicted) of QOL environmental domain score and the 19 independent variables. We found that the 3 most significant variables which could predict QOL environmental domain score were: **social support overall score** (β=0.300), **hospital non-participated holistic care center and non-club** (β= -0.178) and **HIV-related symptoms score** (β= -0.151), respectively

It could be concluded that the social support influenced on all domains of QOL. The HIV-related symptoms influenced on all domains except social relationship domain. Each of domain of QOL had influenced by associating factors. The summary appeared in table 4.9

Table 4.9: The summary of the association between the influencing factors of QOL of each domain and the each domain of QOL

Domain of QOL	Factors that were associated with QOL of each domain		
Physical	• Social support	• HIV-related symptom*	• Duration of ART • CD4 cell count • No presence of OI or comorbidity
Psychological	• Social support	• HIV-related symptom*	• Widowed/divorced/separated*
Social relationship	• Social support	-	• Disclosure HIV status • Patient member • Patient leader
Environmental	• Social support	• HIV-related symptom*	• Hospital non-participated holistic center and non-club*

* negative correlation

4.5 The factors influencing QOL

Based on the conceptual framework, the study included the four factors that could influence the QOL total score including 1) Socio-demographic characteristics 2) Health and treatment 3) Self-care behavior and 4) Social support.

Our multiple regression analysis indicates that in each factor, these were at least one variable appear to be the influencing factor. For socio-demographic characteristics the variable included in the prediction model was only marital status.

For health and treatment, there were two variables, HIV-related symptoms and hospital activity in holistic care service. The other two factors which were self-care behavior and social support were both the predictors in the model.

As the physical domain of QOL, there were five variables that would influence the QOL physical domain score including duration of ART, CD4 cell count, presence of OI or comorbidity, HIV-related symptoms and social support.

The psychological domain, there were three variables that would influence the QOL psychological domain score including marital status, HIV-related symptoms and social support.

The social relationship domain, there were four variables that would influence the QOL social relationship domain score including disclosure HIV status, patients participation in HIV/AIDS clinic (patient member, patient leader) and social support.

And the environmental domain, there were three variables that would influence the QOL environmental domain score including HIV-related symptoms, hospital activity in holistic care service and social support.

CHAPTER V
DISCUSSIONS

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This study was aimed to measure QOL and to investigate the effects of socio-demographic characteristics, health and treatment, self-care behavior and social support on QOL of HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province. The subjects consisted of 360 HIV-infected/AIDS patients ranged in age from 23 to 44 years old. They were currently treated at community hospitals in Nakhon Ratchasima province. The discussions of the findings were provided base on conceptual framework as following:

5.1 Baseline characteristic of the subjects in term of socio-demographic characteristics, health and treatment, self-care behavior and social support

5.1.1 Age

The finding showed that age was not related to total QOL. This finding was contradictory to the theoretical concepts that older individuals tend to have more experience and problem solving skills than younger individuals (Lazarus, R.S. and Folkman, S., 1984). For the subjects in this study, they had been infected with HIV for more than one year, they may have had experienced some problems and crises. So they may have been better to adjust themselves. In addition, 90% of subjects ranged in age from 31 to 44 years. This narrow range of age may make their QOL have no difference. In other words, they belonged to the group of working adults which was in the period that they were able to cope with stress. Thus, there was no difference in QOL of the subjects in different ages.

5.1.2 Gender

The finding showed that gender was not related to total QOL. This finding did not support the previous findings of Fleishman and Fogel (1994), Van Servellen and colleagues (2002) that females may have lower QOL than male due to the negative images and stigma leads women to experiencing a greater sense of shame women with

HIV reported more HIV-related symptoms and limits to functioning than their male counterparts.

It was observed that 61.1% of our sample was female which resembled the same characteristic of the population of HIV-infected/AIDS patients in Nakhon Ratchasima province which had 61.1% of female in the population (Nakhon Ratchasima Provincial Health Office, 2009).

5.1.3 Marital status

The finding indicated that marital status was associated the total QOL with statistical significance ($p < 0.05$). In other words, the HIV-infected/AIDS patients had different QOL based on their marital status group between non-widowed/divorced/ separated group and widowed/divorced/ separated group.

This finding supported previous finding of Thoists (1982) that the marital status was positively related to QOL and it is also a good predictor of QOL. Couples individuals tend to be able to take care each other rather than single individuals. This is because they have their spouses to help them doing different activities. At the same time, their spouses can comfort them, give them encouragement, and offer them advice; hence they can relieve their stress, develop emotional stability, experience sense of self-worth, and have better perceived QOL. However, the single had higher total QOL than widowed/divorced/separated.

This finding also supported previous findings of Manlika Thangjaroen (1991), Premreitai Noimuenwai(1993), Kitinan Sittichai(1997) and Sudanand Piyakul(1997).

We also found that marital status was significantly associated with psychological domain of QOL. The patients who were widowed/divorced/separated will effect to lower psychological domain score of QOL.

5.1.4 Education level

The finding indicated that educational level was not related to total QOL. That is the HIV-infected/AIDS patients who had different education had no difference in QOL. In addition, the finding was contradictory to the theoretical concepts that highly educated individuals were more likely to understand problems and know what to do better than those who were not educated. Although, education had an effect on

individual's income, occupation, achieve life security, be financially stable, values and adaptation, which in turn affect their QOL. However, the education could not confirm these effect and self-care behavior. This finding supports previous findings of Manlika Thangjaroen (1991) studied perception in AIDS and self-care agency to prevent AIDS in prostitute and found that education was not associated with QOL of AIDS patients.

5.1.5 Occupation

According to the finding, there was no relationship between occupation and total QOL of HIV-infected/AIDS patients. The subjects in this study had similar QOL regardless of the type of their work and their employment status. This result is similar to Prapa Ratanametanont (1989) study.

5.1.6 Family Income

There was no relationship between family income and total QOL of HIV-infected/AIDS patients. The subjects in this study had similar QOL regardless of different family income. In general, high educated individuals tend to have better chances to get a stable and well-paid job. In other words, the subjects with higher family income had more opportunities to seek more health care than those with low family income or no family income. Patients with high family income were able to buy equipment or tools that benefit their health and well-being. It also enables them to seek quality medical treatment to restore their health. However, we did not find the association between family income and total QOL in our study.

5.1.7 Disclosure HIV status

There was no relationship between disclosure HIV status and total QOL of HIV-infected/AIDS patients. The subjects in this study had similar QOL result regardless of disclosure HIV status or closed HIV status. In fact, HIV-infected/AIDS patients struggle with numerous psychosocial problems such as stigma, poverty, depression, substance abuse, and cultural beliefs which can affect their QOL not only from physical health aspect. They should receive mental support and social health also. People who would play a significant role in taking care of HIV-infected/AIDS patients were family members and relatives, especially spouses, who are more

important than other sources of social support. In this study, 52.2% of the patient's family member had known the infection status. As a result, they understood the subjects and were able to give the subjects spiritual support. According to a previous study of Kittinan Sittichai (1997), patients who received proper support from the spouse were able to perform health promoting behaviors. Also, the realization that other people, especially those who were important to them, would uplift the subject's spirit and allow them to continue to be happy in spite of their physical sickness and sufferings (Brand, P.A. and Weinert, C., 1981) This support to the conception that success in rehabilitation based on both the patients and their families so as to encourage the patients to fight with the sickness and to strictly follow the treatment plan, thus making them healthy and happy in life.

However, we found that disclosure HIV status was significantly associated with social relationship domain of QOL. The patients who were disclosure HIV status to all of family members will have higher social relationship domain score of QOL.

5.1.8 Duration of HIV infection

The finding showed that the duration of HIV infection was not related to total QOL. That is the HIV-infected/AIDS patients had the similar QOL regardless of their informed about HIV diagnosis. In addition, the finding was contradictory to the theoretical concepts that the longer duration of HIV infection will lead HIV symptoms and morbidity rate that effect to lower QOL. In this study, the average of duration of HIV infection was 6.9 years. All of subjects receiving antiretroviral therapy and 82.5% of subjects have duration of asymptomatic stage (1-10 years). Moreover, the longer the duration of the infection may reflects individual's ability to perform self-care or their responses to stress and the individuals are better able to learn and accept changing situations. Also, most of the subjects had rather similar duration of infection; as a consequence, they had similar adjustments to the treatment plan and to self-care practice. Thus, no difference in QOL of the subjects who had different duration of infection was found in this study.

5.1.9 Duration of ART

The finding showed that the duration of ART was not related to total QOL. That is the HIV-infected/AIDS patients had the similar QOL whether short or long duration of ART. In this study, the average of duration of ART was 4.05 years. 72.5% of subjects had duration was 0.5-5 years. Although, ART may cause unexpected serious side effect or cumulative side effect or drug resistance. However, ART has changed HIV into a treatable, chronic condition. Being left untreated, most HIV-positive people could eventually develop HIV-related illnesses and die. Therefore, the perception of clinical symptoms that affect to QOL may not different.

However, we found that the duration of ART was significantly associated with physical domain score. It meant that the longer of duration of ART will effect to higher physical domain of QOL. Because, when they received ART for longer time, overall of their health may better resulting in the increase in physical domain score of QOL.

5.1.10 Current CD4 cell count

The finding showed that CD4 cell count was not related to total QOL. That is the HIV-infected/AIDS patients had the similar QOL regardless of the CD4 cell count. This finding was contradictory to the theoretical concepts that, when CD4 cell counts increased, the asymptomatic patients had better HRQOL. In this study, the average CD4 was 375.54 cells/mm^3, and 82.5% of subjects were in asymptomatic stage. This CD4 cell count may not present the clinical characteristics within 2 weeks of QOL assessment because it was followed up only 2 times per year.

However, we found that the CD4 cell count was significantly associated with physical domain score. It meant that the higher of CD4 cell count will effect the higher physical domain score of QOL.

5.1.11 Presence of OI or comorbidity

The finding showed that the presence of OI or comorbidity was not related to total QOL. That is the HIV-infected/AIDS patients had the similar QOL between presence of OI or comorbidity and no presence of OI or comorbidity. In fact, the presence of OI or comorbidity increases the severity of the patient's illness. The health

status can change according to the progression of the disease and increase the limitation of the patients's ability to perform self-care. However, we found that the presence of OI or comorbidity was significantly associated with physical domain score. It meant that lack of presence of OI or comorbidity will effect to higher physical domain score of QOL. Because, the patients who had no frequent illness or occurrence of OI, will not suffer from their disease severity.

5.1.12 Adherence

The findings showed that the adherence was not related to total QOL. That is the HIV-infected/AIDS patients had the similar QOL even they have different adherence score. However, the bivariate analysis *(Appendix D)* and the correlation matrix *(Appendix E)* which analyzed the relationship between total QOL score and adherence score showed that the adherence score had a weak significant association with the total QOL score ($r = 0.156$, $p < 0.01$).

5.1.13 HIV-related symptoms

The finding indicated that HIV-related symptoms was associated the total QOL ($p < 0.01$). In other words, the subjects who were more highly HIV-related symptoms had lower QOL. This finding was relevant to the finding of Wachtel et.al. (1992), they found that the presence of symptoms related to the disease and its treatment has been proposed as the strongest indicator of impaired QOL in HIV-positive patients. There was a wide range of HIV-related symptoms such as headache, dizziness, vivid dreams, sleep/mood alteration (depression), psychosis (rare), nausea, vomiting, diarrhea, severe rash and body change. If the symptoms are severe in the patient it may lead to lower QOL.

We also found that HIV-related symptoms score was significantly associated with physical, psychological, environmental domain of QOL. The patients who had lower HIV-related symptoms score will have higher physical, psychological, environmental domain score of QOL.

5.1.14 Patient participation in HIV/AIDS clinic

The finding indicated that the patients participation in HIV/AIDS clinic was not related to QOL. In other words, the subjects who participated in HIV/AIDS clinic had not a different QOL. This finding was contradictory to the concepts that the patient member in HIV/AIDS clinic will have more knowledge about health education and had social integration that effect to higher QOL. However, the bivariate analysis (*Appendix D*) found that the mean total QOL score of patient leader group was significantly higher than patient who only antiretroviral drug receiving group ($p=0.016 < \alpha\ 0.050$) and mean total QOL score of patient leader also was significantly higher than patient member (no home visited) group ($p=0.033 < \alpha\ 0.05$).

We also found that patient participation in HIV/AIDS clinic was significantly associated with social relationship domain of QOL. The patients who were patient members or patient leaders will have effect to higher social relationship domain score of QOL.

5.1.15 Hospital activity in holistic care service

The finding indicated that the patient who had treated at hospital participation in holistic care service was associated the total QOL with statistical significance ($p<0.01$). In other words, the subjects who had been treated at different group of hospital participation in holistic care service had a different QOL. This finding was relevant to the finding of Natchaya Sonkhum, Praneet Songwathana, and Kittikorn Nilmanat (2008), who found that the HIV care service received had a significant positive correlation with QOL. Because of the holistic care service such as religious, recreational, and income-generating activities, home visits, support groups, and sharing information could be used to be the supporting intervention to improve all of domains of QOL including physiological, psychological, social relationship and environmental domain. Therefore, the patients who had treated at hospitals which were non-participation in holistic care center and non-club may have lower QOL.

We also found that hospital activity in holistic care service was significantly associated with environmental domain of QOL. The patients who had treated at hospital non-participation in holistic care center and non-club will have lower environmental domain score of QOL.

5.1.16 Self-care behavior

The finding indicated that self-care behavior was asscociated the total QOL with statistical significance ($p < 0.05$). In other words, the subjects who had better self-care behavior had a higher QOL. This result showed that the self-care of HIV-infected/AIDS patients had the score from 41-89 points and the mean of self-care was 72.91 with the good level. The result was similar to Orem's concept (2001) that self-care behavior developed from duration of time, experience, learning individual patient life style making patient had ability to take care themselves in order to maintain physical, stability structure, functional of body organ and well-being. We also found that the level of the universal, developmental and health-deviation self- care behavior score were good level all that may lead to higher QOL.

5.1.17 Social support

The finding indicated that social support was associated the total QOL with statistical significance ($p < 0.01$). In other words, the subjects who had more social support had a higher QOL. In this study, social support means that the HIV-infected/AIDS patients perceived assistance in physical, mental, emotional, and social needs from the family members, spouses, descendants, or other relatives and communities in 5 aspects including intimacy, worth, social integration, assistance and nurturance. Social support had an influenced on health condition and physical and mental sickness because of the following reasons: 1) Social support played a direct role to promote health and well-being regardless of levels of stress. Social support was an important factor that creates a positive feeling about self and living. Consistent relationships within a social network make individuals feel that they were trusted, have self-pride, and feel uplifted and stable and 2) Social support was a barrier to stressful conditions and whatever had a negative effect on health. In other words, its function was to prevent individuals from discomfort (Lazarus, R.S. and Folkman, S., 1984.).

We also found that the social support overall score was significantly associated with every domain score of QOL. The patients who had received social support will have higher score of QOL in every domain including physical, psychological, social relationship and environmental domain.

5.2 Total QOL and each domain of QOL of HIV-infected/AIDS patients

The research findings revealed that the mean score of total QOL of HIV-infected/AIDS patients was 84.74 (moderate level) and the most of subjects (82%) had total QOL at a moderate level also. The results showed that 2.8% and 15.0% had total QOL at a poor and good level, respectively. When considering each domain of QOL, there were many factors influencing QOL as following:

The physical domain of QOL of the most subjects had a moderate level. We found that the physical domain score was significantly associated with duration of ART, CD4 cell count, presence OI or comorbidity, HIV-related symptoms score and social support overall score. Patients who had received ART for a longer time, higher CD4 cell count, lack of presence OI or comorbidity, lack of HIV-related symptoms, higher social support score were more likely to have higher physical domain score.

The psychological domain of QOL of the most subjects had a good level. We found that the psychological domain score was significantly associated with widowed/divorced/separated, HIV-related symptoms score and social support overall score. Patients who had marital status as widowed/divorced/separated were more likely to have lower psychological domain score. Patients who were lack of HIV-related symptoms and had higher social support score were more likely to have higher psychological domain score.

The social relationship domain of QOL of the most subjects had a moderate level. We found that the social relationship domain score was significantly associated with disclosure HIV status, patient member, patient leader and social support overall score. Patients who had disclosed HIV status to all family member, joined group of health education or home visited, leader of HIV/AIDS club, higher social support score were more likely to have higher social relationship domain score.

The environmental domain of QOL of the most subjects had a moderate level. We found that the environmental domain score was significantly associated with HIV-related symptoms score, hospital non-participated holistic center and non-club and social support overall score. Patients who had more HIV-related symptoms score was treated at hospital non-participated holistic center and non-club and had lower social support score were more likely to have lower environmental domain score.

CHAPTER VI
CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study aimed to measure QOL and to examine factors influencing QOL of 360 HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province. The subjects ranged in age from 23-44 years, with the mean age of 36.8 years. Most of them were couples, more than primary education, and the insurance scheme provided from UC. The largest group of them worked as wage earners or laborers. The average monthly family income was approximately 4,400 baht and most of them did not have sufficient income. About half of all were disclosed of HIV status.

The average of duration of HIV infection and duration of ART was 6.90 and 4.05 years, respectively. The average of CD4 cell count was 375.54 cells/mm^3. About half of them had presence of OI or comorbidity. The average of percentage of adherence and HIV-related symptoms score was 89.95% and 16.65 points, respectively. Most of subjects participated in HIV/AIDS clinic (85%). And most of patients were treated at hospital that participated in holistic care center (85%).

The good level appears in overall self-care behavior of the most of the patients. It was found that all parts of self-care behavior including universal, developmental and health deviation self-care behavior were good level also and the moderate level appears in overall social support which including intimacy, worth, social integration, assistance and nurturance.

In this study, the total QOL of HIV-infected/AIDS patients was moderate level. And each domain of QOL including physiological, psychological, social relationship and environmental domain were moderate, good, moderate and moderate level, respectively.

As the physical domain of QOL, there were five variables that could influence the QOL physical domain score including duration of ART, CD4 cell count, presence of OI or comorbidity, HIV-related symptoms and social support.

The psychological domain, there were three variables that could influence the QOL psychological domain score including marital status, HIV-related symptoms and social support.

The social relationship domain, there were four variables that could influence the QOL social relationship domain score including disclosure HIV status, patients participation in HIV/AIDS clinic (patient member, patient leader) and social support.

And the environmental domain, there were three variables that could influence the QOL environmental domain score including HIV-related symptoms, hospital activity in holistic care service and social support.

Based on the conceptual framework, the study included the four factors that could influence the total QOL score including 1) Socio-demographic characteristic 2) Health and treatment 3) Self-care behavior and 4) Social support.

The multiple regression analysis indicates that in each factor, these were at least one variable appear to be the influencing factor. For socio-demographic characteristics the variable included in the prediction model was only marital status. For health and treatment, there were two variables, HIV-related symptoms and hospital activity in holistic care service. The other two factors which were self-care behavior and social support were both the predictors in the model.

Public healthcare service providers should be promote social support, self-care behavior, participation in holistic care activities especially the patients who had more HIV-related symptoms or widowed/divorced/separated group in order to develop holistic care and improve better QOL for the HIV-infected/AIDS patients.

6.2 Limitations of study

1. The data of CD4 cell count was from medical record. Because, the NHSO guidelines allow the patient to followed up only 2 times per year. The time to collect the CD4 cell count was not the same time as the data collection from the questionnaire. It may not represent updated clinical characteristics of patients.
2. The data of education level reported in categoried data. If data were collected in terms of year of education, it may on association with the QOL.

3. The data of the presence of OI or comorbidity did not reflect the number of type of the presence OI or comorbidity. In our study, the number of presence OI or comorbidity was not used in the analysis.
4. The studied questionnaire had 14 pages which required amount of time for patients to complete all of them. Patients may be bored and lack of times to concentrate on some questions. This may result in the information bias based upon the burden of time to be used.

6.3 Recommendations

National level:

- Department of Disease Control, Ministry of Public Health should provide the guidelines for social support and self-care behavior.
- The National Health Security office (NHSO) should allocate resources focusing on self-care behavior and include the program to enhance self-care behavior in the list of benefit to improve the QOL among HIV-infected/AIDS patients.

Provincial level:

- Provincial health office should support healthcare providers to be more active in holistic care and improve the provincial holistic care network.
- Provincial health office should support the system that enhances the hospitals that have best practice to offer their hospital staff to visit and guide other hospital.

Hospital level:

- Director of community hospital should provide HIV/AIDS policy to improve the supportive factors such as social support and self-care behavior to increase QOL of HIV-infected/AIDS patients.
- Public healthcare service providers should promote social support, self-care behavior and participate in holistic care activities such as club activity for the patients who had more HIV-related symptoms or the widowed/divorced/ separated group in order to improve better QOL for the HIV-infected/AIDS patients.
- Hospital staff working as coordinator of HIV-infected/AIDS patients should encourage HIV-infected/AIDS patients to participate in club of clinic.

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APPENDICES

Appendix A : Understanding the sample size in multiple regression analysis

The sample size in multiple regression analysis was calculated according to Cohen's power which was the most widely used method for MRA (Polit, D.F., and Beck, C.T., 2003), The estimated population effect size (γ) was as follow: $\gamma = \frac{R^2}{1-R^2}$ The value of R^2 was small (R^2 = 0 .02), moderate (R^2 = 0 .13), or large (R^2 = 0 .30). In the current study, an estimated moderate size (R^2 = 0.13) was chosen. Thus,

$$\gamma = \frac{0.13}{1-0.13} = 0.02$$

Next, the following formula is applied: $N = \frac{L}{\gamma} + k + 1$

Where N = estimated number of subjects in the sample

L = table value for the desired α and power

k = number of predictors (independent variables)

γ = estimated effect size of the relationship between an independent variables and the dependent variables.

This study was planning to examine factors that predicting QOL among HIV/AIDS patients, with seventeen independent variables (age, gender, marital status, education level, occupation, income, disclosure HIV status , duration of HIV infection, duration of ART, current CD4 cell count,present of OI or comorbidity, adherence, symptom, patient participation in clinic, hospital activity in holistic care service, self-care behavior and social support), the alpha set at 0.05, a power (1-β) of 0.80, a moderate effect size (R^2 = 0.13), the estimated population effect size (γ) was 0.149. According to the Power Analysis Table for Multiple Regression, the value of L was equal to 18.81. Therefore, $N = \frac{18.81}{0.149} + 17 + 1 = 144.24$

Based on the above formula, the sample size should be at least 145 subjects. However, the researcher add up to 10% for some not completed responded. Finally, the final samples in this study were 160 HIV/AIDS patients.

Appendix B : Questionnaire

แบบสอบถามการวิจัย เรื่อง

ปัจจัยที่ส่งผลต่อคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์

ที่รับการรักษาในโรงพยาบาลชุมชน จังหวัดนครราชสีมา

เกณฑ์การรับอาสาสมัครในการกรอกแบบสอบถาม

- ✓ ผู้ที่รับยาต้านไวรัสเอดส์
- ✓ มีอายุ 20 - 44 ปีเต็ม
- ✓ เข้าคลินิกก่อนเดือนตุลาคม 2552
- ✓ จะต้องมารับบริการที่คลินิกเป็นเวลาอย่างน้อย 3 เดือนอย่างต่อเนื่อง
- ✓ เป็นผู้มีสติสัมปชัญญะสมบูรณ์
- ✓ **สามารถอ่าน-เขียนภาษาไทยได้ สื่อสารได้ยิน** ไม่มีสภาวะจิตใจที่ผิดปกติ
- ✓ มีความ**ตั้งใจ** และมี**สมาธิ**ในการกรอกแบบสอบถามเป็นเวลา 30-45 นาที

ส่วนที่	แบบสอบถามผู้ติดเชื้อเอชไอวี/ ผู้ป่วยเอดส์ 1 ชุดมี 14 หน้า แบ่งออกเป็น 5 ส่วน ดังนี้	
1	**ข้อมูลส่วนบุคคล**	10 ข้อ
2	**ข้อมูลด้านสุขภาพ และการรักษา**	
ข้อ 11-20	2.1 โรคและการรักษา	10 ข้อ
ข้อ 21-26	2.2 การให้ความร่วมมือในการใช้ยาต้านไวรัสเอดส์	6 ข้อ
ข้อ 27-46	2.3 อาการเจ็บป่วย	20 ข้อ
3	**ข้อมูลวัดพฤติกรรมการดูแลตนเอง**	30 ข้อ
4	**ข้อมูลวัดแรงสนับสนุนทางสังคม**	25 ข้อ
5	**ข้อมูลวัดคุณภาพชีวิต**	26 ข้อ

ส่วนที่ 1: ข้อมูลส่วนบุคคลของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์ | **สำหรับรพ.**

<u>คำชี้แจง</u> : เป็นแบบสอบถามที่**ตอบด้วยตนเอง** โดยทำเครื่องหมาย ☑ หรือ**<u>เติมข้อความ</u>**ลงในช่องว่าง

1. อายุเต็ม.....ปี | Age……

2. เพศ 1 [ ] ชาย 2 [ ] หญิง | Sex……

3. สถานภาพ 1 [ ] คู่ และ อยู่ด้วยกัน 2 [ ] คู่ แต่ ไม่ได้อยู่ด้วยกัน
3 [ ] โสด 4 [ ] หม้าย หย่า หรือแยกกันอยู่ | Status……

4. การศึกษาสูงสุด …… | Edu……

5. สิทธิการรักษา
1 [ ] เบิกไม่ได้/ชำระเงินเอง 2 [ ] บัตรทอง
3 [ ] เบิกต้นสังกัด,กรมบัญชีกลาง 4 [ ] ประกันสังคม | Sheme……

6. อาชีพ
1 [ ] เกษตรกรรม 2 [ ] ค้าขาย/ธุรกิจส่วนตัว
3 [ ] บริษัทเอกชน 4 [ ] ข้าราชการ/รัฐวิสาหกิจ
5 [ ] รับจ้างรายวัน 6 [ ] ไม่ได้ประกอบอาชีพ
7 [ ] อื่นๆ ระบุ..... | Occu……

7. รายได้ทั้งหมดของครอบครัว ประมาณ.....บาทต่อเดือน | Incom……

8. ฐานะทางเศรษฐกิจของครอบครัวอยู่ในระดับใด
1 [ ] รายได้**เพียงพอ**กับรายจ่าย
2 [ ] รายได้**ไม่**เพียงพอกับรายจ่าย
3 [ ] มีเงิน**เหลือเก็บ** | Adequa……

9. ท่านเปิดเผยสถานภาพการติดเชื้อเอชไอวีกับสมาชิกในครอบครัวหรือไม่ | Disclos……

10. ครอบครัวของท่านมีมีสมาชิกจำนวน……คน และกี่คนที่***รับทราบ*** ว่าท่านติดเชื้อเอชไอวี/เอดส์ | Fam……
0 [ ] ไม่มี
1 [ ] มี จำนวน……คน

ส่วนที่ 2 : ข้อมูลด้านสุขภาพ และการรักษา

<u>คำชี้แจง</u> : เป็น**แบบสอบถามจากเวชระเบียนผู้ป่วย โดยให้เจ้าหน้าที่**ทำเครื่องหมาย ☑ หรือเติมข้อความลงในช่องว่าง

11. ท่านทราบผลเลือดว่าติดเชื้อเอชไอวีมาเป็นระยะเวลานาน.....ปีเต็ม — Durat……

12. ค่า CD4 ครั้งล่าสุด.....ตรวจเมื่อ.....(ว/ด/ป) — CD4……

13. ท่านมีโรคประจำตัวหรือไม่ อย่างไร (ตอบได้มากกว่า 1 ข้อ)

0 [ ] ไม่มี

1 [ ] มี ได้แก่

- 1.1 [ ] โรคเบาหวาน (Diabetes Mellitus; DM) — DM……
- 1.2 [ ] โรคความดันโลหิตสูง (Hypertension; HT) — HT……
- 1.3 [ ] โรคไขมันในเลือดสูง(Dyslipidemia) — Dyslip……
- 1.4 [ ] โรคโลหิตจาง (Anemia) — Anemia……
- 1.5 [ ] โรคตับ (Liver Disease) — Liver……
- 1.6 [ ] โรคไต (Kidney Disease) — Kidney……
- 1.7 [ ] อื่นๆ ระบุ..... — Ocomor……

14. ปัจจุบันท่านมีโรคแทรกซ้อน/ โรคติดเชื้อฉวยโอกาสหรือไม่ อย่างไร (ตอบได้มากกว่า 1 ข้อ)

0 [ ] ไม่มี

1 [ ] มี ได้แก่

- 1.1 [ ] เชื้อราในช่องปาก (oral candidiasis; OC) — OC……
- 1.2 [ ] ไข้เรื้อรังไม่ทราบสาเหตุ (unknown fever) — Fever……
- 1.3 [ ] อุจจาระร่วงเรื้อรัง (chronic diarrhea) — Diarr……
- 1.4 [ ] ผื่นผิวหนังอักเสบเรื้อรัง (pruritic popular eruption; PPE) — PE……
- 1.5 [ ] วัณโรคใน/นอกปอด (Tuberculosis; TB) — TB……
- 1.6 [ ] ปอดอักเสบ (Pneumocystis carinii pneumonia; PCP) — PCP……
- 1.7 [ ] เยื่อหุ้มสมองอักเสบ (cryptococcal meningitis) — Mening……
- 1.8 [ ] ฝีในสมอง (cerebral toxoplasmosis) — Toxo……
- 1.9 [ ] อื่นๆ ระบุ..... — Ooi……

15. ปัจจุบัน ท่านได้รับยาต้านไวรัสเอดส์สูตรใด…… — ARV……

16. ท่านได้รับยาต้านไวรัสเอดส์มา เป็นเวลานาน……ปีเต็ม — ARVDur……

17. ที่คลินิกเอดส์ ท่านมีส่วนร่วมในการทำกิจกรรมใดบ้าง

1 [ ] รับยาเท่านั้น

2 [ ] รับยา,เข้ากลุ่มผู้ติดเชื้อ (ฟังสุขศึกษา,สันทนาการ ฯลฯ) Pt.part……

3 [ ] รับยา,เข้ากลุ่มผู้ติดเชื้อ (ฟังสุขศึกษา,สันทนาการ ฯลฯ), รับการเยี่ยมบ้าน (ระบุจำนวน……ครั้ง)

4 [ ] เป็นแกนนำผู้ติดเชื้อในการทำกิจกรรมทั้งหมดที่กล่าวมา

18. ท่านได้ทำ**กิจกรรมข้อ 17** มาเป็นระยะเวลานาน……ปี……เดือน Pt.dura……

19. ในช่วงเวลา 3 เดือนที่ผ่านมา ท่านได้ทำ**กิจกรรมในข้อ 17** บ่อยแค่ไหน

1 [ ] น้อยกว่า 3 ครั้ง 2 [ ] 3 ครั้ง 3 [ ] มากกว่า 3 ครั้ง 4 [ ] อื่นๆ ระบุ…… Pt.freq……

20. โรงพยาบาลที่ท่านรับการรักษา มีการจัดตั้งศูนย์องค์รวมหรือกลุ่มผู้ติดเชื้อในการดูแลผู้ป่วยหรือไม่

1 [ ] มีศูนย์องค์รวม

2 [ ] ไม่มี ศูนย์องค์รวม แต่มีการรวมกลุ่มผู้ติดเชื้อเพื่อทำกิจกรรมร่วมกัน Hos.part……

3 [ ] ไม่มีทั้ง ศูนย์องค์รวม และไม่มีการรวมกลุ่มผู้ติดเชื้อ

ส่วนที่ 2.2 : แบบสอบถามการให้ความร่วมมือในการใช้ยาต้านไวรัสเอดส์

21. ท่านเคย**ลืมกิน**ยาต้านไวรัสเอดส์บ้างหรือไม่

0 [ ] ไม่เคยลืม 1 [ ] เคยลืม adher1……

22. ท่านเคย**ละเลยเวลา**ในการกินยาต้านไวรัสเอดส์หรือเคยกินยาต้านไวรัสเอดส์ไม่ตรงเวลา บ้างหรือไม่

0 [ ] ไม่เคย 1 [ ] เคย adher2……

23. ในบางครั้งที่ท่านรู้สึกว่ามีอาการแย่ลง ท่านจะ**หยุดกิน**ยาต้านไวรัสเอดส์หรือไม่

0 [ ] ไม่หยุดกิน 1 [ ] หยุดกิน adher3……

24. ในช่วง<u>สัปดาห์ที่ผ่านมา</u> ท่าน**ลืมกิน**ยาต้านไวรัสเอดส์ **บ่อยแค่ไหน**

0 [ ] ไม่เคยลืมเลย 1 [ ] ลืม 1-2 ครั้ง 2 [ ] ลืม 3-5 ครั้ง

3 [ ] ลืม 6-10 ครั้ง 4 [ ] ลืมมากกว่า 10 ครั้ง adher4……

25. ในช่วง<u>วันหยุดสุดสัปดาห์ ที่ผ่านมา</u> ท่าน**ลืมกิน**ยาต้านไวรัสเอดส์หรือไม่

0 [ ] ไม่ลืม 1 [ ] ลืม adher5……

26. ในช่วงระยะเวลาตั้งแต่ <u>3 เดือนที่ผ่านมา จนถึงเมื่อวานนี้</u> ***ท่านไม่ได้กินยาต้านไวรัสเอดส์เลย*** เป็นจำนวนทั้งหมดกี่วัน adher6……

0 [ ] ไม่เคยลืมเลย หรือ ลืมไม่เกิน 2 วัน 1 [ ] ลืมมากกว่า 2 วันขึ้นไป =%ADHERENCE

ส่วนที่ 2.3 : **แบบสอบถามอาการเจ็บป่วยของผู้ติดเชื้อเอชไอวี/ ผู้ป่วยเอดส์**

<u>คำชี้แจง</u> เป็นคำถามเกี่ยวกับอาการเจ็บป่วยที่อาจเกิดขึ้นกับท่านใน**ช่วง 2 สัปดาห์ที่ผ่านมา** กรุณาทำเครื่องหมาย ☑ ลงบนคำตอบที่เลือกตาม **<u>ความถี่</u>** ***และ*** **<u>ความรุนแรง</u>** ของอาการที่ท่านพบ

ข้อ	<u>ความถี่</u>ที่พบอาการนี้				อาการ *ในช่วง 2 สัปดาห์ที่ผ่านมา*	<u>ความรุนแรง</u>ของอาการนี้				สำหรับ รพ.
	ไม่พบเลย	1-3 วันต่อสัปดาห์	4-6 วันต่อสัปดาห์	พบทุกวัน		ไม่พบอาการนี้	รุนแรงเล็กน้อย	รุนแรงปานกลาง	รุนแรงมากที่สุด	
27	0	1	2	3	เป็นไข้ หนาวสั่น เหงื่อออก	0	1	2	3	27
28	0	1	2	3	อ่อนล้าไม่มีแรง ปวดเมื่อย	0	1	2	3	28
29	0	1	2	3	ปวดหัว	0	1	2	3	29
30	0	1	2	3	เสียว ชาปลายประสาท	0	1	2	3	30
31	0	1	2	3	เสียสมดุล ทรงตัวไม่อยู่	0	1	2	3	31
32	0	1	2	3	ปัญหาที่ผิวหนัง ผื่น คัน	0	1	2	3	32
33	0	1	2	3	นอนหลับได้ยาก ไม่สนิท	0	1	2	3	33
34	0	1	2	3	มีปัญหาในการจำ	0	1	2	3	34
35	0	1	2	3	รู้สึกวิตกกังวล หรือกลุ้มใจ	0	1	2	3	35
36	0	1	2	3	ไอจาม หวัด น้ำมูก	0	1	2	3	36
37	0	1	2	3	ท้องเสียหรือถ่ายเหลว	0	1	2	3	37
38	0	1	2	3	คลื่นไส้ อาเจียน	0	1	2	3	38
39	0	1	2	3	กลืนลำบาก	0	1	2	3	39
40	0	1	2	3	หายใจลำบาก หอบเหนื่อย	0	1	2	3	40
41	0	1	2	3	ตาพร่ามัว เห็นไม่ค่อยชัด	0	1	2	3	41
42	0	1	2	3	เบื่ออาหาร กินไม่รู้รส	0	1	2	3	42
43	0	1	2	3	น้ำหนักลด	0	1	2	3	43
44	0	1	2	3	มีเชื้อราในปาก	0	1	2	3	44
45	0	1	2	3	ผมร่วง	0	1	2	3	45
46	0	1	2	3	มีปัญหาด้านเพศสัมพันธ์	0	1	2	3	46

ส่วนที่ 3 แบบสอบถามวัดพฤติกรรมการดูแลตนเองของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์

<u>คำชี้แจง</u> แบบสอบถามนี้เกี่ยวกับการปฏิบัติดูแลตนเอง 3 ด้าน คือ

1. การดูแลตนเองที่จำเป็นโดยทั่วไป จำนวน 15 ข้อ ข้อที่ 1-15
2. การดูแลตนเองที่จำเป็นตามระยะพัฒนาการ จำนวน 4 ข้อ ข้อที่ 16-19
3. การดูแลตนเองที่จำเป็นตามภาวะเบี่ยงเบนทางด้านสุขภาพ จำนวน 11 ข้อ ข้อที่ 20-30

รวมทั้งหมด 30 ข้อ ขอให้ท่านตอบให้ครบทุกข้อ โดยเลือกคำตอบที่ตรงกับความเป็นจริงตามที่ท่านปฏิบัติเพียงข้อละ 1 คำตอบโดยแสดงเครื่องหมาย☑ ลงในช่องที่ตรงกับข้อความในแต่ละข้อคำถาม โดยมีเกณฑ์การตอบ ดังนี้

3 = ปฏิบัติ**เป็นประจำ** หมายถึง ท่านปฏิบัติกิจกรรมในข้อความนั้น *สม่ำเสมอทุกวัน*

2 = ปฏิบัติ**บ่อยครั้ง** หมายถึง ท่านปฏิบัติกิจกรรมในข้อความนั้น *ส่วนใหญ่*

1 = ปฏิบัติ**นาน ๆ ครั้ง** หมายถึง ท่านปฏิบัติกิจกรรมในข้อความนั้น *บางครั้ง*

0 = **ไม่ปฏิบัติ** หมายถึง ท่าน *ไม่เคย* ปฏิบัติกิจกรรมในข้อความนั้นเลย

<u>หมายเหตุ</u> * ข้อคำถามที่มีความหมายในด้านลบ จะได้คะแนนตรงข้ามกับด้านบวก

	กิจกรรม	ระดับการปฏิบัติ				สำหรับ รพ.
		3	2	1	0	
1.การดูแลตนเองที่จำเป็นโดยทั่วไป						
1	ท่านหลีกเลี่ยงการอยู่ในที่ที่มีอากาศถ่ายเทไม่สะดวก	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	1
2	เมื่อมีสมาชิกในบ้านป่วยเป็นโรคติดเชื้อในระบบทางเดินหายใจ เช่น ไข้ หวัด ไอ จาม ท่านจะหลีกเลี่ยง หรือไม่อยู่ใกล้ชิด หรือสวมหน้ากากอนามัย	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	2
3	ท่านดื่มน้ำสะอาด มากกว่าวันละ 6 แก้ว	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	3
4	ในการรับประทานอาหารในแต่ละมื้อ ท่านจะรับประทานอาหารครบทุกหมู่ เช่น ข้าว เนื้อ ผัก และผลไม้	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	4
5	ท่านรับประทานอาหารสุกๆดิบๆ หรืออาหารหมักดอง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	5*

กิจกรรม		ระดับการปฏิบัติ				สำหรับ รพ.
		3	2	1	0	
6	ท่านดื่มสุรา หรือเครื่องดื่มที่มีส่วนผสมของแอลกอฮอล์	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	6*
7	ท่านสูบบุหรี่	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	7*
8	ท่านป้องกันไม่ให้เกิดอาการท้องผูก หรือ รับประทานผัก, ผลไม้ทุกวัน	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	8
9	ท่านนอนหลับพักผ่อนไม่เพียงพอหรือน้อยกว่าวันละ6ชั่วโมง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	9*
10	ท่านออกกำลังกาย เช่น เดินบริหารร่างกาย หรือเล่นกีฬา ครั้งละ 30 นาที อาทิตย์ละ 3 ครั้ง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	10
11	ท่านดูแลสุขอนามัยส่วนตัว เช่น อาบน้ำ แปรงฟันทุกวัน	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	11
12	ห้องน้ำที่ท่านใช้ประจำได้รับการดูแลให้สะอาด ไม่ลื่น	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	12
13	หลังขับถ่ายหรือเข้าห้องส้วม ท่านล้างมือจนสะอาด	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	13
14	ท่านหาเวลาในการพบปะสังสรรค์กับผู้อื่น	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	14
15	ท่านหาเวลาว่างเพื่อความเป็นส่วนตัว เช่น การพักผ่อนหย่อนใจ การทำงานอดิเรกตามความชอบของท่าน	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	15
2.การดูแลตนเองที่จำเป็นตามระยะพัฒนาการ						
16	เมื่อมีข้อขัดแย้งกับคนในครอบครัว ท่านจะหลีกเลี่ยง หรือออกไปนอกบ้าน	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	16*
17	ขณะเจ็บป่วย ท่านพยายามช่วยเหลือตนเองในการทำกิจวัตรประจำวันให้มากที่สุด	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	17
18	ท่านมีโอกาสได้ตัดสินใจด้วยตนเองในเรื่องต่างๆ เช่น การรับการรักษา การดูแลตนเอง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	18
19	ท่านตั้งเป้าหมายเกี่ยวกับตนเองตามความเป็นจริง เช่น การมีชีวิตอยู่เป็นสิ่งที่มีความหมาย	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	19

กิจกรรม		ระดับการปฏิบัติ				สำหรับ รพ.
		3	2	1	0	
3.การดูแลตนเองที่จำเป็นในภาวะเบี่ยงเบนทางด้านสุขภาพ						
20	เมื่อท่านมีความผิดปกติของร่างกาย ท่านมักปล่อยทิ้งไว้ให้หายเองมากกว่าที่จะไปรับการรักษาจากแพทย์	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	20*
21	ท่านแสวงหาความรู้เรื่องโรคเอดส์ และวิธีการดูแลตนเอง โดยการซักถามบุคคลอื่น อ่านหนังสือ ดูโทรทัศน์ ฟังวิทยุ เป็นต้น	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	21
22	ท่านและครอบครัวมีการปรึกษาหารือ ออกความคิดเห็น เพื่อที่จะช่วยเหลือในการดูแลสุขภาพของท่าน	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	22
23	ท่านรับประทานยาต้านไวรัสเอดส์สม่ำเสมอ	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	23
24	ท่านพยายามอยู่ห่างจากผู้ป่วยโรคระบบทางเดินหายใจ หวัด วัณโรค	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	24
25	ท่านสังเกตอาการผิดปกติของตนเอง เช่น มีไข้สูง น้ำหนักลด อุจจาระร่วง มีเชื้อราในปาก	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	25
26	ท่านบ้วนเสมหะลงพื้น หรือ ไม่เป็นที่เป็นทาง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	26*
27	ท่านระวังไม่ให้รับเชื้อเอดส์เพิ่ม โดยไม่สัมผัสกับสิ่งคัดหลั่ง (เลือด น้ำเหลือง อุจจาระ อาเจียน) ของผู้ติดเชื้อเอดส์ผู้อื่น	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	27
28	ท่านระวังไม่ให้รับเชื้อเอดส์เพิ่มโดยไม่สำส่อนทางเพศ และเมื่อมีเพศสัมพันธ์ ท่านหรือคู่นอนของท่านสวมถุงยางอนามัย	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	28
29	ท่านใช้มีดโกน กรรไกรตัดเล็บ ร่วมกับผู้อื่น	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	29*
30	ท่านเคยคิดที่จะทำร้ายตนเอง	เป็นประจำ	บ่อยครั้ง	นานๆครั้ง	ไม่ปฏิบัติ	30*

ส่วนที่ 3 แบบสอบถามวัดแรงสนับสนุนทางสังคมของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์

<u>คำชี้แจง</u> แบบสอบถามนี้มีวัตถุประสงค์ต้องการทราบว่า หลังจากที่ท่านเจ็บป่วยจนถึงปัจจุบัน ท่านได้รับรู้แรงสนับสนุนทางสังคมว่าอย่างไร และโปรดทำเครื่องหมาย ☑ ลงในช่องคำตอบของระดับแรงสนับสนุนที่ได้รับ ซึ่งมีให้ท่านเลือกตอบดังนี้

5 = เห็นด้วยอย่างยิ่ง หมายถึง ท่านได้รับการสนับสนุน หรือ มีความรู้สึก ตามข้อความในคำถามนั้น **มากที่สุด**

4 = เห็นด้วย หมายถึง ท่านได้รับการสนับสนุน หรือ มีความรู้สึกตามข้อความในคำถามนั้น **มาก**

3 = รู้สึกเฉยๆหรือไม่แน่ใจ หมายถึง ท่านได้รับการสนับสนุน หรือ มีความรู้สึกตามข้อความในคำถามนั้น **ปานกลาง**

2 = ไม่เห็นด้วย หมายถึง ท่านได้รับการสนับสนุน หรือ มีความรู้สึกตามข้อความในคำถามนั้น **เล็กน้อย**

1 = ไม่เห็นด้วยอย่างยิ่ง หมายถึง ท่าน**ไม่ได้**รับการสนับสนุน หรือ **ไม่มี** ความรู้สึกตามข้อความในคำถามนั้นเลย

<u>หมายเหตุ</u> * ข้อคำถามที่มีความหมายในด้านลบ จะได้คะแนนตรงข้ามกับด้านบวก

	แรงสนับสนุนทางสังคม	ระดับการปฏิบัติ					สำหรับ
		5	4	3	2	1	รพ.
1.ด้านความรักใคร่ผูกพัน							
1	ท่านมีคนใกล้ชิดที่ทำให้รู้สึกอบอุ่น และปลอดภัย	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	1
2	มีคนที่รับฟังความรู้สึกของท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	2
3	เมื่อท่านอารมณ์ไม่ดี ท่านมีคนที่สามารถรับฟังและยอมรับท่านได้	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	3
4	ไม่มีคนที่รักและเอาใจใส่ท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	4*
5	เพื่อนหรือคนอื่นที่ท่านติดต่อด้วยมีส่วนทำให้ท่านรู้สึกมีคุณค่า	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	5
2.ด้านความรู้สึกมีคุณค่าในตัวเอง							

แรงสนับสนุนทางสังคม		ระดับการปฏิบัติ					สำหรับ
		5	4	3	2	1	รพ.
6	คนส่วนมากบอกว่าท่านเป็นคนดี	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	6
7	คนอื่นบอกท่านว่าพวกเขาไม่สนุกที่ได้ทำกิจกรรมร่วมกับท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	7*
8	สมาชิกในครอบครัวทำให้ท่านรู้สึกว่าครอบครัวดำรงอยู่ได้เพราะท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	8
9	คนอื่นชื่นชอบและพอใจในตัวท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	9
10	มีคนคิดว่าท่านเป็นเพื่อนที่ไม่ดีเท่าที่ควร	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	10*
3.ด้านการเป็นส่วนหนึ่งของสังคม							
11	ท่านรู้สึกว่าตนเองมีความสำคัญต่อครอบครัวและคนในกลุ่ม	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	11
12	ท่านมีเวลาว่างร่วมทำกิจกรรมต่างๆกับคนที่มีความสนใจตรงกับท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	12
13	ท่านมีกลุ่มเพื่อนที่คอยช่วยเหลือซึ่งกันและกัน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	13
14	ท่านมีคนที่จะร่วมงานสังคมและงานรื่นเริงต่างๆด้วย	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	14
15	ท่านรู้สึกว่าไม่มีใครที่มีปัญหาเหมือนท่าน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	15*
4.ด้านการให้ความช่วยเหลือแก่บุคคลอื่น							
16	ตลอดชีวิตที่ผ่านมาท่านไม่มีโอกาสที่จะคอยดูแลช่วยเหลือผู้อื่น	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	16*

แรงสนับสนุนทางสังคม		ระดับการปฏิบัติ					สำหรับ
		5	4	3	2	1	รพ.
17	ท่านมีโอกาสสนับสนุนความสนใจและความสามารถของผู้อื่น	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	17
18	ท่านชอบทำสิ่งพิเศษเล็กๆน้อยๆเพื่อช่วยให้คนอื่นมีความสุขมากขึ้น	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	18
19	ท่านมีโอกาสในการช่วยเหลือคนที่ต้องการความช่วยเหลือ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	19
20	ท่านมีความรู้สึกว่า ท่านยังเป็นที่ต้องการของผู้อื่น	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	20
5.ด้านการได้รับความช่วยเหลือในด้านต่างๆ							
21	ท่านไม่สามารถพึ่งพาญาติพี่น้องและเพื่อนฝูงได้เมื่อมีปัญหา	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	21*
22	ท่านมีคนที่พร้อมให้ความช่วยเหลือท่านได้นานเท่าที่ท่านต้องการ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	22
23	ท่านมีญาติหรือเพื่อนที่จะช่วยเหลือท่านโดยไม่หวังผลตอบแทน	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	23
24	ถ้าท่านต้องการคำแนะนำ จะมีคนช่วยท่านวางแผนแก้ไขสถานการณ์ต่างๆได้	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	24
25	เมื่อท่านเจ็บป่วยจะมีคนให้คำแนะนำท่านในการดูแลตนเองได้	เห็นด้วยอย่างยิ่ง	เห็นด้วย	รู้สึกเฉยๆ หรือไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	25

ส่วนที่ 5 แบบสอบถามวัดคุณภาพชีวิตของผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์

<u>คำชี้แจง</u> ในช่วง 2 สัปดาห์ที่ผ่านมา ให้ท่านสำรวจตัวท่านเองและประเมินเหตุการณ์หรือคำตอบที่เหมาะสมและเป็นจริงกับตัวท่าน (โดยกาเครื่องหมาย ☑ ทับข้อความที่ตรงกับความเป็นจริงที่เกี่ยวกับตัวท่านในแต่ละคำถาม) โดยมี 5 ตัวเลือก คือ

1 = ไม่เลย หมายถึง ท่านไม่มีความรู้สึกเช่นนั้นเลย รู้สึกไม่พอใจมาก หรือ รู้สึกแย่มาก

2 = เล็กน้อย หมายถึง ท่านมีความรู้สึกเช่นนั้นนานๆครั้ง รู้สึกเช่นนั้นเล็กน้อย รู้สึกไม่พอใจ หรือ รู้สึกแย่

3 = ปานกลาง หมายถึง ท่านมีความรู้สึกเช่นนั้นปานกลาง รู้สึกพอใจระดับกลาง ๆ หรือ รู้สึกแย่ระดับกลาง

4 = มาก หมายถึง ท่านมีความรู้สึกเช่นนั้นบ่อยๆ รู้สึกพอใจ หรือ รู้สึกดี

5 = มากที่สุด หมายถึง ท่านมีความรู้สึกเช่นนั้นเสมอ รู้สึกเช่นนั้นมากที่สุด รู้สึกว่าสมบูรณ์ รู้สึกพอใจมาก รู้สึกดีมาก

<u>หมายเหตุ</u> * ข้อคำถามที่มีความหมายในด้านลบ จะได้คะแนนตรงข้ามกับด้านบวก

ข้อ	ในช่วง 2 สัปดาห์ที่ผ่านมา	1	2	3	4	5	รพ.
1	ท่านพอใจกับสุขภาพของท่านในตอนนี้เพียงใด	ไม่พอใจเลย	พอใจ เล็กน้อย	พอใจ ปานกลาง	พอใจ มาก	พอใจ มากที่สุด	1
2	ท่านมีการเจ็บปวดตามร่างกาย เช่น ปวดหัว ปวดตามตัว ทำให้ท่านไม่สามารถทำในสิ่งที่ต้องการมากน้อยเพียงใด	สามารถ ทำได้	ไม่สามารถ ทำได้ เล็กน้อย	ไม่สามารถ ทำได้ ปานกลาง	ไม่สามารถ ทำได้ อย่างมาก	ไม่สามารถ ทำได้อย่าง มากที่สุด	2*
3	ท่านมีกำลังเพียงพอที่จะทำสิ่งต่างๆ ในแต่ละวันหรือไม่ (ทั้งเรื่องงาน,การดำเนินชีวิต ประจำวัน)	ไม่มีกำลังเลย	มีกำลัง เล็กน้อย	มีกำลัง ปานกลาง	มีกำลัง มาก	มีกำลัง มากที่สุด	3
4	ท่านพอใจกับการนอนหลับของท่านมากน้อยเพียงใด	ไม่พอใจเลย	พอใจ เล็กน้อย	พอใจ ปานกลาง	พอใจ มาก	พอใจ มากที่สุด	4
5	ท่านรู้สึกพอใจในชีวิต (เช่น มีความสุข ความสงบ หรือมีความหวัง) มากน้อยเพียงใด	ไม่พอใจเลย	พอใจ เล็กน้อย	พอใจ ปานกลาง	พอใจ มาก	พอใจ มากที่สุด	5
6	ท่านมีสมาธิในการทำงานต่างๆดีเพียงใด	ไม่มีสมาธิเลย	มีสมาธิ เล็กน้อย	มีสมาธิ ปานกลาง	มีสมาธิ มาก	มีสมาธิ มากที่สุด	6

ข้อ	ในช่วง 2 สัปดาห์ที่ผ่านมา	1	2	3	4	5	รพ.
7	ท่านรู้สึกพอใจในตนเองมากน้อยเพียงใด	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	7
8	ท่านยอมรับรูปร่างหน้าตาของตนเองได้เพียงใด	ยอมรับไม่ได้เลย	ยอมรับได้เล็กน้อย	ยอมรับได้ปานกลาง	ยอมรับได้มาก	ยอมรับได้มากที่สุด	8
9	ท่านมีความรู้สึกที่ไม่ดี เช่นรู้สึกเหงา เศร้า หดหู่ สิ้นหวัง วิตกกังวล บ่อยแค่ไหน	ไม่มีความรู้สึกไม่ดีเช่นนั้นเลย	มีความรู้สึกไม่ดีเช่นนั้นเล็กน้อย	มีความรู้สึกไม่ดีเช่นนั้นปานกลาง	มีความรู้สึกไม่ดีเช่นนั้นอย่างมาก	มีความรู้สึกไม่ดีเช่นนั้นมากที่สุด	9*
10	ท่านรู้สึกพอใจมากน้อยแค่ไหนที่สามารถทำอะไรๆ ผ่านไปได้ในแต่ละวัน	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	10
11	ท่านจำเป็นต้องไปรับการรักษาพยาบาลมากน้อยเพียงใดเพื่อที่จะทำงานหรือมีชีวิตอยู่ไปได้ในแต่ละวัน	ไม่จำเป็นต้องไปเลย	จำเป็นต้องไปเล็กน้อย	จำเป็นต้องไปปานกลาง	จำเป็นต้องไปมาก	จำเป็นต้องไปมากที่สุด	11*
12	ท่านพอใจกับความสามารถในการทำงานได้อย่างที่เคยทำมามากน้อยเพียงใด	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	12
13	ท่านพอใจต่อการผูกมิตรเข้ากับคนอื่นอย่างที่ผ่านมาแค่ไหน	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	13
14	ท่านพอใจกับการช่วยเหลือที่เคยได้รับจากเพื่อนๆ แค่ไหน	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	14
15	ท่านรู้สึกว่าชีวิตมีความมั่นคงปลอดภัยดีไหมในแต่ละวัน	ไม่รู้สึกเช่นนั้นเลย	รู้สึกเช่นนั้นเล็กน้อย	รู้สึกเช่นนั้นปานกลาง	รู้สึกเช่นนั้นอย่างมาก	รู้สึกเช่นนั้นมากที่สุด	15
16	ท่านพอใจกับสภาพบ้านเรือนที่อยู่ตอนนี้มากน้อยเพียงใด	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	16
17	ท่านมีเงินพอใช้จ่ายตามความจำเป็นมากน้อยเพียงใด	มีเงินไม่พอใช้เลย	มีเงินพอใช้เล็กน้อย	มีเงินพอใช้ปานกลาง	มีเงินพอใช้มาก	มีเงินพอใช้มากที่สุด	17

ข้อ	ในช่วง 2 สัปดาห์ที่ผ่านมา	1	2	3	4	5	รพ.
18	ท่านพอใจที่จะสามารถไปใช้บริการสาธารณสุขได้ตามความจำเป็นเพียงใด	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	18
19	ท่านได้รู้เรื่องราวข่าวสารที่จำเป็นในชีวิตแต่ละวัน มากน้อยเพียงใด	ไม่ได้รับรู้เลย	ได้รับรู้เล็กน้อย	ได้รับรู้ปานกลาง	ได้รับรู้อย่างมาก	ได้รับรู้อย่างมากที่สุด	19
20	ท่านมีโอกาสได้พักผ่อนคลายเครียดมากน้อยเพียงใด	ไม่มีโอกาสได้พักผ่อนเลย	มีโอกาสได้พักผ่อนเล็กน้อย	มีโอกาสได้พักผ่อนปานกลาง	มีโอกาสได้พักผ่อนมาก	มีโอกาสได้พักผ่อนมากที่สุด	20
21	สภาพแวดล้อมดีต่อสุขภาพของท่านเพียงใด	ไม่ดีเลย	ดีเล็กน้อย	ดีปานกลาง	ดีอย่างมาก	ดีมากที่สุด	21
22	ท่านพอใจกับการเดินทางไปไหนมาไหน (หมายถึงการคมนาคม) มากน้อยเพียงใด	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	22
23	ท่านรู้สึกว่าชีวิตท่านมีความหมายมากน้อยแค่ไหน	รู้สึกไม่มีความหมายเลย	รู้สึกมีความหมายเล็กน้อย	รู้สึกมีความหมายปานกลาง	รู้สึกมีความหมายปานกลาง	รู้สึกมีความหมายมากที่สุด	23
24	ท่านสามารถไปไหนมาไหนด้วยตนเองได้ดีเพียงใด	แย่มาก	แย่	ไม่ดีและไม่แย่	ดี	ดีมาก	24
25	ท่านพอใจในชีวิตทางเพศของท่านแค่ไหน *(เมื่อเกิดความรู้สึกทางเพศขึ้นแล้วท่านมีวิธีจัดการทำให้ผ่อนคลายได้รวมถึงการช่วยตัวเอง หรือมีเพศสัมพันธ์)*	ไม่พอใจเลย	พอใจเล็กน้อย	พอใจปานกลาง	พอใจมาก	พอใจมากที่สุด	25
26	ท่านคิดว่าท่านมีคุณภาพชีวิต(ชีวิตความเป็นอยู่)ในระดับไหน	แย่มาก	แย่	ไม่ดีและไม่แย่	ดี	ดีมาก	26

☺ **ขอขอบพระคุณทุกท่านที่ให้ความร่วมมือในการกรอกแบบสอบถามค่ะ** ☺

Appendix C : การคำนวณร้อยละของความร่วมมือในการใช้ยาต้านไวรัสเอดส์ จากแบบประเมิน Simplified Medication Adherence Questionnaire (SMAQ)

จากการศึกษาของ Knobel et at. (2002) พบว่า ในแต่ละข้อคำถามมีความสัมพันธ์ต่อความสำเร็จในการรักษาทางคลินิกที่แตกต่างกัน แสดงด้วยค่า odds ratio (OR) ได้ดังตารางต่อไปนี้

คำถาม	OR	ตัวอย่างการคิดคะแนน		
		คำตอบ	คะแนน	Weighted scores
1. คุณเคยลืมกินยาต้านไวรัสเอดส์บ้างหรือไม่	2.1	เคยลืม	1	1x2.1=2.1
2. คุณเคยละเลยเวลาในการกินยาหรือเคยกินยาไม่ตรงเวลา บ้างหรือไม่	2.4	เคย	1	1x2.4=2.4
3. ในบางครั้งที่คุณรู้สึกว่ามีอาการแย่ลง คุณจะหยุดกินยาต้านไวรัสเอดส์ หรือไม่	2.07	ไม่หยุด	0	0x2.07=0
4. ในช่วงสัปดาห์ที่ผ่านมา คุณลืมกินยาต้านไวรัสเอดส์บ่อยแค่ไหน 0. ไม่เคยลืมเลย 1. ลืม 1 – 2 ครั้ง 2. ลืม 3 - 5 ครั้ง 3. ลืม 6 – 10 ครั้ง 4. ลืม มากกว่า 10 ครั้ง	 Ref. 1.6 2.8 6.3 9.5	ลืม 1- 2 ครั้ง	1	1x2.8=2.8
5. ในช่วงวันหยุดสุดสัปดาห์ที่ผ่านมา คุณลืมกินยาต้านไวรัสเอดส์ หรือไม่	2.5	ลืม	1	1x2.5=2.5
6. ในช่วงระยะเวลาตั้งแต่ 3 เดือนที่ผ่านมาจนถึงเมื่อวานนี้ คุณไม่ได้กินยาต้านไวรัสเอดส์เลยเป็นจำนวนทั้งหมดกี่วัน 0. ไม่เคยลืมเลย หรือ ลืมไม่เกิน 2 วัน 1. ลืมมากกว่า 2 วันขึ้นไป	 Ref. 2.9	ลืมมากกว่า 2 วัน	1	1x2.9=2.9
Total	Total OR = 32.17		Total **Weighted scores = 12.7**	
ร้อยละของความไม่ร่วมมือในการใช้ยา	(12.7 / 32.17) x 100 = 39.47			
ร้อยละของความร่วมมือในการใช้ยา	100 - 39.47 = 60.52			

หมายเหตุ คำตอบปฏิเสธ (ไม่ ไม่เคย ไม่ลืม ไม่หยุด) ในแต่ละข้อ มีค่าคะแนนเท่ากับ 0 คำตอบรับ (ใช่ เคย ลืม หยุด) ในต่ละข้อ มีค่าคะแนนเท่ากับ 1

Appendix D : Exploration of relation between total QOL score and factor influencing QOL among HIV-infected/AIDS patients at community hospitals in Nakhon Ratchasima province

1. Age

The dependent variable was total QOL score. The independent variable was age of patients. Therefore, Pearson's Correlation was used to analyze the relationship between QOL total score and age of patients. The analysis results were showed in the following table,

H0: $\rho_{AGE.QOL} = 0$
Ha: $\rho_{AGE.QOL} \neq 0$

Correlation

		age	total QOL score
age	Pearson Correlation	1	0.056
	Sig. (2-tailed)		0.288

The Pearson's correlation test which analyzed the relationship between total QOL score and age of patients showed that,

1) P-value from Pearson's Correlation was not significantly different ($p= 0.288 > \alpha\ 0.05$). Do not reject null hypothesis. Therefore, age of patients was not significantly correlate with total QOL score.

2) Pearson's Correlation (r) was 0.056.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.003.

The result showed that there was a weak relationship but not significant between the age of patients and the total QOL score.

2. Gender

The dependent variable was a total QOL score. The independent variable was a sex. Sex was divided into male and female. Therefore, analysis of variance (ANOVA) was used to compare the means total QOL score between two groups. The analysis results were showed in the following three tables,

H0: $\sigma^2_{male} = \sigma^2_{female}$
Ha: $\sigma^2_{male} \neq \sigma^2_{female}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.944	1	358	0.332

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.332 > α 0.05). Do not reject null hypothesis. Therefore, variance of male and female are equal.

Descriptives

	Gender	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Male	140	83.37	11.443	0.967	81.46	85.28	44	108
	Female	220	85.61	10.625	0.716	84.20	87.02	50	110
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each group as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL score of male was lower than female.

H0: $\mu QOL_{male} = \mu QOL_{female}$
Ha: $\mu QOL_{male} \neq \mu QOL_{female}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	428.388	1	428.388	3.573	0.060
Within Groups	42925.068	358	119.902		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between male group and female group. P-value from ANOVA was not significant different (p= 0.060 > α 0.05). Do not reject null hypothesis. Therefore, mean total QOL score of male group was not significantly lower than female group.

3. Marital status

The dependent variable was a total QOL score. The independent variable was a marital status. Marital status was divided into couples and stay together, couples but no stay together, single and widowed/divorced/separated. Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between four groups. The analysis results were showed in the following three tables,

H0: $\sigma^2_{\text{Couples and stay together}} = \sigma^2_{\text{Couples but no stay together}} = \sigma^2_{\text{Single}} = \sigma^2_{\text{ Widowed/Divorced/Separated}}$

Ha: $\sigma^2_{\text{Couples and stay together}} \neq \sigma^2_{\text{Couples but no stay together}} \neq \sigma^2_{\text{Single}} \neq \sigma^2_{\text{ Widowed/Divorced/Separated}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.522	3	356	0.208

The result showed the test of homogeneity of variances. Homogeneity of variance was significantly different (p= 0.208 > α 0.05). Do not reject null hypothesis. Therefore, variance of four groups of marital status were equal.

Descriptives

	Marital status	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Couples and stay together	197	85.50	10.523	0.750	84.02	86.98	50	110
	Couples but no stay together	33	85.24	11.133	1.938	81.29	89.19	68	109
	Single	57	84.30	10.585	1.402	81.49	87.11	59	109
	Widowed/Divorced/Separated	73	82.81	12.362	1.447	79.92	85.69	44	106
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each marital status as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL scores were different between couples and stay together, couples but no stay together, single and widowed/divorced/separated.

H0: $\mu_{\text{Couples and stay together}} = \mu_{\text{Couples but no stay together}} = \mu_{\text{Single}} = \mu_{\text{ Widowed/Divorced/Separated}}$

Ha: $\mu_{\text{Couples and stay together}} \neq \mu_{\text{Couples but no stay together}} \neq \mu_{\text{Single}} \neq \mu_{\text{Widowed/Divorced/Separated}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	404.901	3	134.967	1.119	0.341
Within Groups	42948.554	356	120.642		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between couples and stay together, couples but no stay together, single and widowed/divorced/ separated. P-value from ANOVA was not significant different (p= 0.341> α 0.05). Do not reject null hypothesis. Therefore, mean QOL total score were not significantly different between couples and stay together, couples but no stay together, single and widowed/divorced/separated.

If the marital status was divided into non-widowed/divorced/separated group and widowed/divorced/separated group. Therefore, analysis of variance (ANOVA) was used to compare the means total QOL score between two groups. The analysis results were showed in following three tables,

H0: $\sigma^2_{\text{non- Widowed/Divorced/Separated}} = \sigma^2_{\text{ Widowed/Divorced/Separated}}$

Ha: $\sigma^2_{\text{non- Widowed/Divorced/Separated}} \neq \sigma^2_{\text{ Widowed/Divorced/Separated}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
3.634	1	358	0.057

The result showed the test of homogeneity of variances. Homogeneity of variance was significantly different (p= 0.057 > α 0.05). Do not reject null hypothesis. Therefore, variance of two groups of marital status were equal.

Descriptives

	Marital status	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	non - Widowed/Divorced/Separated	287	85.23	10.579	0.624	84.00	86.46	50	110
	Widowed/Divorced/Separated	73	82.81	12.362	1.447	79.92	85.69	44	106
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each marital status as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL scores were different between non widowed/divorced/separated group and widowed/divorced/ separated group.

H0: $\mu QOL_{\text{non Widowed/Divorced/Separated}} = \mu QOL_{\text{Widowed/Divorced/Separated}}$

Ha: $\mu QOL_{\text{non Widowed/Divorced/Separated}} \neq \mu QOL_{\text{Widowed/Divorced/Separated}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	341.318	1	341.318	2.841	0.093
Within Groups	43012.137	358	120.146		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between single group, married group, and widowed group. P-value from ANOVA was not significant different ($p= 0.093 > \alpha\ 0.05$). Do not reject null hypothesis. Therefore, mean total QOL score were not significantly different between non widowed/divorced/separated group and widowed/divorced/separated group.

4. Educational level

The dependent variable was a total QOL score. The independent variable was an educational level. Educational level was divided into illiterate, primary education, initial secondary education, end secondary education, college diploma/high vocational diploma and bachelor degree. Therefore, analysis of variance (ANOVA) was used to compare the means total QOL score between five groups. The analysis results were showed in following three tables,

H0: $\sigma^2_{\text{illiterate}} = \sigma^2_{\text{primary}} = \sigma^2_{\text{initial secondary}} = \sigma^2_{\text{end secondary}} = \sigma^2_{\text{college/high vocational diploma}} = \sigma^2_{\text{bachelor}}$

Ha: $\sigma^2_{\text{illiterate}} \neq \sigma^2_{\text{primary}} \neq \sigma^2_{\text{initial secondary}} \neq \sigma^2_{\text{end secondary}} \neq \sigma^2_{\text{college/high vocational diploma}} \neq \sigma^2_{\text{bachelor}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.943	5	354	0.087

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.087 > α 0.05). Do not reject null hypothesis. Therefore, five groups of patient which defined by educational level have an equal variance.

Descriptives

	Educational level	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Illiterate	8	84.62	8.245	2.915	77.73	91.52	67	93
	Primary education	243	84.29	10.900	0.699	82.91	85.67	44	110
	Initial Secondary education	63	86.19	10.226	1.288	83.62	88.77	59	108
	End Secondary education	38	85.92	12.656	2.053	81.76	90.08	57	109
	College diploma/High vocational diploma	6	83.00	16.383	6.688	65.81	100.19	63	109
	Bachelor degree	2	77.00	0.000	0.000	77.00	77.00	77	77
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each educational level as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, and upper bound of 95% confidence interval, minimum and maximum. Mean QOL total scores were different between group.

H0: $\mu QOL_{illiterate} = \mu QOL_{primary} = \mu QOL_{initial\ secondary} = \mu QOL_{end\ secondary} = \mu QOL_{college/high\ vocational\ diploma} = \mu QOL_{bachelor\ degree}$

Ha: $\mu QOL_{illiterate} \neq \mu QOL_{primary} \neq \mu QOL_{initial\ secondary} \neq \mu QOL_{end\ secondary} \neq \mu QOL_{college/high\ vocational\ diploma} \neq \mu QOL_{bachelor\ degree}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	373.268	5	74.654	0.615	0.689
Within Groups	42980.188	354	121.413		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between illiterate group, primary education group, initial secondary education group, end secondary education group, college diploma/high vocational diploma group and bachelor degree group. P-value from ANOVA was not significant different (p= 0.689 > α 0.05). Do not reject null hypothesis. Therefore, mean total QOL score were not significantly different between group.

If the independent variable was an educational level was divided into less than or equal primary education and more than primary education. Therefore, analysis of variance (ANOVA) was used to compare the means total QOL score between two groups. The analysis results were showed in the following three tables

H0: $\sigma^2_{less\ than\ or\ equal\ primary} = \sigma^2_{more\ than\ primary}$

Ha: $\sigma^2_{less\ than\ or\ equal\ primary} \neq \sigma^2_{more\ than\ primary}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.351	1	358	0.246

The result showed test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.246 > α 0.05). Do not reject null hypothesis. Therefore, two groups of patient which defined by educational level had an equal variance

Descriptives

	Educational level	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
QOL total score	less than or equal primary education	251	84.30	10.813	.682	82.95	85.64	44	110
	More than primary education	109	85.75	11.371	1.089	83.59	87.91	57	109
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each educational level as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, and upper bound of 95% confidence interval, minimum and maximum. Mean QOL total scores were different between less than or equal primary education group and more than primary education group.

H0: $\mu QOL_{\text{less than or primary}} = \mu QOL_{\text{more than primary}}$

Ha: $\mu QOL_{\text{less than or primary}} \neq \mu QOL_{\text{more than primary}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	160.554	1	160.554	1.331	0.249
Within Groups	43192.902	358	120.651		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between less than or equal primary education group and more than primary education group. P-value from ANOVA was not significant different (p= 0.249 > α 0.05). Do not reject null hypothesis. Therefore, mean QOL score total were not significantly different between less than or equal primary education group and more than primary education group.

5. Occupation

The dependent variable was a total QOL score. The independent variable was occupation that patients have been working. Occupation was divided into each group of patients who have been Agriculturist, Business owner, Private company, Government officer, Wage earner or laborer and Unemployed. Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between six groups. The analysis results were showed in the following three tables,

H0: $\sigma^2_{\text{agriculturist}} = \sigma^2_{\text{business owner}} = \sigma^2_{\text{private company}} = \sigma^2_{\text{government officer}} = \sigma^2_{\text{laborer}} = \sigma^2_{\text{unemployed}}$

Ha: $\sigma^2_{\text{agriculturist}} \neq \sigma^2_{\text{business owner}} \neq \sigma^2_{\text{private company}} \neq \sigma^2_{\text{government officer}} \neq \sigma^2_{\text{laborer}} \neq \sigma^2_{\text{unemployed}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.686	5	354	0.634

The results showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.634 > α 0.05). Do not reject null hypothesis. Therefore, six groups which defined by occupation had an equal variance.

Descriptive

	Occupation	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Agriculturist	116	85.06	10.851	1.007	83.06	87.06	58	109
	Business owner	32	84.53	10.866	1.921	80.61	88.45	57	109
	Private company	14	91.43	11.373	3.040	84.86	98.00	75	109
	Government officer	2	87.00	2.828	2.000	61.59	112.41	85	89
	Wage earner /laborer	174	83.96	10.932	0.829	82.32	85.60	44	110
	Unemployed	22	85.05	12.010	2.561	79.72	90.37	67	108
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each group of patients which defined by occupation as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, and upper bound of 95% confidence interval, minimum and maximum. Mean total QOL scores were different between groups of patients who have been Agriculturist, Business Owner, Private company,Government officer, Wage earner or laborer and Unemployed.

H0: $\mu QOL_{agriculturist} = \mu QOL_{business\ owner} = \mu QOL_{private\ company} = \mu QOL_{government\ officer} = \mu QOL_{laborer} = \mu QOL_{unemployed}$

Ha: $\mu QOL_{agriculturist} = \mu QOL_{business\ owner} = \mu QOL_{private\ company} = \mu QOL_{government\ officer} = \mu QOL_{laborer} = \mu QOL_{unemployed}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	757.808	5	151.562	1.260	0.281
Within Groups	42595.648	354	120.327		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between Agriculturist, Business owner, Private company, Government officer, Wage earner or laborer and Unemployed. P-value from ANOVA was not significant different (p= 0.281 > α 0.05). Do not reject null hypothesis. Therefore, mean total QOL score were not significantly different between Agriculturist, Business owner, Private company, Government officer, Wage earner or laborer and Unemployed

If the occupation was divided into each group of patients who had stable occupation group (Agriculturist, Business owner, Private company, Government officer) and non-stable

occupation group (Wage earner or laborer, Unemployed) Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between two groups. The analysis results were showed in three tables,

H0: $\sigma^2_{\text{stable}} = \sigma^2_{\text{non-stable occupation}}$
Ha: $\sigma^2_{\text{stable}} \neq \sigma^2_{\text{non-stable occupation}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.000	1	358	0.982

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.982 > α 0.05). Do not reject null hypothesis. Therefore, two groups which defined by occupation have an equal variance.

Descriptive

	Occupation	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	stable	164	85.52	10.920	0.853	83.84	87.21	57	109
	non-stable	196	84.08	11.031	0.788	82.53	85.64	44	110
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each group of patients which defined by occupation as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL scores were different between groups of patients who had stable occupation group (Agriculturist, Business owner, Private company, Government officer) and non-stable occupation group (Wage earner or laborer, Unemployed)

H0: $\mu QOL_{\text{stable}} = \mu QOL_{\text{non-stable occupation}}$
Ha: $\mu QOL_{\text{stable}} \neq \mu QOL_{\text{non-stable occupation}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	185.859	1	185.859	1.541	0.215
Within Groups	43167.596	358	120.580		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between stable occupation (Agriculturist, Business owner, Private company, Government officer)and non-stable occupation (Wage earner or laborer, Unemployed).P-value from ANOVA was not significant different (p= 0.215 > α 0.05). Do not reject null hypothesis. Therefore, mean QOL total score were not significantly different between stable occupation and non-stable occupation.

6. Income

The dependent variable was a total QOL score. The independent variable was a income. Therefore, Pearson's Correlation was used to analyze the relationship between total QOL score and income. The analysis results were showed that,

H0: $\rho_{income.QOL} = 0$

Ha: $\rho_{income.QOL} \neq 0$

Correlation

		Income	Total score
Income	Pearson Correlation	1	0.053
	Sig. (2-tailed)		0.320

The result showed the Pearson's correlation test which analyzed the relationship between QOL total score and income.

1) P-value from Pearson's Correlation was not significantly different (p= 0.320 > α 0.05). Do not reject null hypothesis. Therefore, income was not significantly correlated with total QOL score.

2) Pearson's Correlation (r) was 0.0053

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.003

The result shows that there was a weak relationship but not significant between the income and the total QOL score.

7. Disclosure HIV status

The dependent variable was a total QOL score. The independent variable was a disclosure HIV status. Disclosure HIV status was divided into disclosed and closed status. Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between two groups. The analysis results were showed in the following table,

H0: $\sigma^2_{disclosure} = \sigma^2_{closed}$

Ha: $\sigma^2_{disclosure} \neq \sigma^2_{closed}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.000	1	358	0.992

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.992 > α 0.05). Do not reject null hypothesis. Therefore, variance of disclosure and closed HIV status are equal.

Descriptives

	HIV status	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Disclosure	192	86.27	10.609	0.766	84.76	87.78	51	110
	Closed	168	82.99	11.187	0.863	81.29	84.70	44	109
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each group as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL score of disclosure was higher than closed of HIV status

H0: $\mu QOL_{disclosure} = \mu QOL_{closed}$

Ha: $\mu QOL_{disclosure} \neq \mu QOL_{closed}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	959.008	1	959.008	8.098	**0.005**
Within Groups	42394.447	358	118.420		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between disclosure group and closed HIV status group. P-value from ANOVA was not significant different ($p= 0.005 < \alpha\ 0.05$). Reject null hypothesis. Therefore, mean QOL total score of disclosure group was significantly higher than closed HIV status group.

8. Duration of HIV infection

The dependent variable was a total QOL score. The independent variable was the duration of HIV infection. Therefore, Pearson's Correlation was used to analyze the relationship between total QOL score and the duration of HIV infection. The analysis results were showed in table,

H0: $\rho_{duration.QOL} = 0$

Ha: $\rho_{duration.QOL} \neq 0$

Correlation

		Duration of HIV infection	QOL
Duration of HIV infection	Pearson Correlation	1	0.108*
	Sig. (2-tailed)		**0.040**

*Correlation is significant at the 0.05 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between QOL total score and the duration of HIV infection.

1) P-value from Pearson's Correlation was significantly different (p= 0.040 < α 0.05). Reject null hypothesis. Therefore, duration of HIV infection was significantly correlated with QOL total score.

2) Pearson's Correlation (r) was 0.108.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.012.

The result showed that the duration of HIV infection was a weak significant predictor of the total QOL score (r = 0.108, p= 0.040).The variance within duration of HIV infection could explain 1.2 % of variance within total QOL score.

9. Duration of Antiretroviral Therapy

The dependent variable was a total QOL score. The independent variable was the duration of antiretroviral therapy receiving. Therefore, Pearson's Correlation was used to analyze the relationship between QOL total score and the antiretroviral therapy receiving. The analysis results were showed in table,

H0: $\rho_{ART.QOL} = 0$

Ha: $\rho_{ART.QOL} \neq 0$

Correlation

		Duration of HIV infection	QOL
Duration of HIV infection	Pearson Correlation	1	0.143**
	Sig. (2-tailed)		**0.006**

*Correlation is significant at the 0.01 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between QOL total score and the duration of antiretroviral therapy receiving.

1) P-value from Pearson's Correlation was significantly different (p= 0.006 < α 0.05). Reject null hypothesis. Therefore, duration of antiretroviral therapy receiving was significantly correlated with QOL total score.

2) Pearson's Correlation (r) was 0.143.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.021.

The results showed that the duration of antiretroviral therapy receiving was a weak significant predictor of the QOL total score (r = 0.143, p= 0.006). The variance within duration of antiretroviral therapy receiving could explain 2.1 % of variance within QOL total score.

10. Current CD4 cell count

The dependent variable was a total QOL score. The independent variable was the CD4 cell count. Therefore, Pearson's Correlation was used to analyze the relationship between total QOL score and the duration of HIV infection. The analysis results were showed in the following table,

H0: $\rho_{CD4.QOL} = 0$

Ha: $\rho_{CD4.QOL} \neq 0$

Correlation

		Current CD4 cell count	QOL
Current CD4 cell count	Pearson Correlation	1	0.128*
	Sig. (2-tailed)		**0.015**

*Correlation is significant at the 0.05 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between total QOL score and the CD4 cell count.

1) P-value from Pearson's Correlation was significantly different (p= 0.015 < α 0.05). Reject null hypothesis. Therefore, current CD4 cell count was significantly correlated with QOL total score.

2) Pearson's Correlation (r) was 0.128.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.016.

The result showed that the current CD4 cell count was a weak significant predictor of the QOL total score (r = 0.128, p= 0.015). The variance within the CD4 cell count could explain 1.6 % of variance within total QOL score.

11. Presence of OI or Comorbidity

The dependent variable was a QOL total score. The independent variable was a presence of OI or comorbidity. Presence of OI or Comorbidity was divided into have and no have. Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between two groups. The analysis results were showed in table,

H0: $\sigma^2_{have} = \sigma^2_{no\ have}$

Ha: $\sigma^2_{have} \neq \sigma^2_{no\ have}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.002	1	358	0.967

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.967 > α 0.05). Do not reject null hypothesis. Therefore, variance of have and no have of presence of OI or comorbidity were equal.

Descriptives

	Presence of OI or Comorbidity	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
QOL total score	Have	154	83.19	11.121	.896	81.42	84.97	44	109
	No have	206	85.89	10.773	.751	84.41	87.37	50	110
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each group as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL score of have was lower than no have of presence of OI or comorbidity.

H0: $\mu QOL_{have} = \mu QOL_{no\ have}$
Ha: $\mu QOL_{have} \neq \mu QOL_{no\ have}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	641.649	1	641.649	5.378	**0.021**
Within Groups	42711.806	358	119.307		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between have presence of OI or comorbidity group and no have group. P-value from ANOVA was significant different (p= 0.021 < α 0.05). Reject null hypothesis. Therefore, mean total QOL score of have presence of OI or comorbidity group was significantly lower than no have of presence of OI or comorbidity group.

12. Adherence score

The dependent variable was a QOL total score. The independent variable was an adherence score. Therefore, Pearson's Correlation was used to analyze the relationship between total QOL score and adherence score. The analysis results were showed in the following table ,

H0: $\rho_{ADHERENCE.QOL} = 0$
Ha: $\rho_{ADHERENCE.QOL} \neq 0$

Correlation

		Adherence score	QOL
Adherence score	Pearson Correlation	1	0.156**
	Sig. (2-tailed)		**0.003**

**Correlation is significant at the 0.01 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between total QOL score and adherence score.

1) P-value from Pearson's Correlation was significantly different (p= 0.003 < α 0.05). Reject null hypothesis. Therefore, adherence score was significantly correlated with QOL total score.

2) Pearson's Correlation (r) was 0.156.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.024.

The result shows that the adherence score was a weak significant predictor of the QOL total score (r = 0.156, p= 0.003).The variance within adherence score could explain 2.4% of variance within total QOL score.

13. HIV-related symptom score

The dependent variable was a total QOL score. The independent variable was an Symptom score. Therefore, Pearson's Correlation was used to analyze the relationship between QOL total score and symptom score. The analysis results are shown in the following table,

H0: $\rho_{SYMPTOM.QOL} = 0$

Ha: $\rho_{SYMPTOM.QOL} \neq 0$

Correlation

		Symptom score	QOL
Symptom score	Pearson Correlation	1	-0.320**
	Sig. (2-tailed)		**0.000**

**Correlation is significant at the 0.01 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between total QOL score and symptoms score.

1) P-value from Pearson's Correlation was significantly different (p= 0.000 < α 0.05). Reject null hypothesis. Therefore, symptoms score was significantly correlated with total QOL.

2) Pearson's Correlation (r) was 0.320.

3) Direction was negative.

4) Coefficient of Determination (R^2) was 0.102

The result showed that the symptom score was a weak significant predictor of the QOL total score (r = 0.320, p= 0.000). The variance within symptom score could explain 10.2% of variance within total QOL score.

14. Patients participation of holistic care activities

The dependent variable was a total QOL score. The independent variable was a patient participation in HIV/AIDS clinic. The patient participation in HIV/AIDS clinic was divided into Receiving drug only, Member (joined group of health education), Member and home visited and Leader. Therefore, analysis of variance (ANOVA) was used to compare the means QOL total score between four groups. The analysis results were showed in the following table,

H0: $\sigma^2_{\text{only receiving drug}} = \sigma^2_{\text{member}} = \sigma^2_{\text{member and home visited}} = \sigma^2_{\text{leader}}$
Ha: $\sigma^2_{\text{only receiving drug}} \neq \sigma^2_{\text{member}} \neq \sigma^2_{\text{member and home visited}} \neq \sigma^2_{\text{leader}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
2.469	3	356	0.062

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.062 > α 0.05). Do not reject null hypothesis. Therefore, four groups of patients which defined by patient participation of holistic healthcare activities were equal.

Descriptive

	Hospital	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Total QOL score	Only receiving drug	54	81.61	13.105	1.783	78.03	85.19	44	102
	Member (joined group of health education)	134	83.14	9.914	.856	81.45	84.84	57	109
	Member and home visited	124	86.35	11.007	.988	84.40	88.31	51	110
	Leader	48	88.54	9.662	1.395	85.74	91.35	68	108
	Total	360	84.74	10.989	.579	83.60	85.88	44	110

The result showed the descriptive data of each patient participation in HIV/AIDS clinic as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean total QOL scores were different between Receiving drug only group, Member (joined group of health education) group, Member and home visited group, and leader group.

H0: $\mu\ \text{QOL}_{\text{only receiving drug}} = \mu\ \text{QOL}_{\text{member}} = \mu\ \text{QOL}_{\text{member and home visited}} = \mu\ \text{QOL}_{\text{leader}}$
Ha: $\mu\ \text{QOL}_{\text{only receiving drug}} \neq \mu\ \text{QOL}_{\text{member}} \neq \mu\ \text{QOL}_{\text{member and home visited}} \neq \mu\ \text{QOL}_{\text{leader}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1888.012	3	629.337	5.403	**0.001**
Within Groups	41465.443	356	116.476		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between Receiving drug only group, Member (joined group of health education) group, Member and

home visited group, and leader group. P-value from ANOVA was significantly different (p = 0.001 < α 0.05). Reject null hypothesis. Therefore, mean total QOL of at least one group was significantly different from other groups.

Multiple Comparisons
Dependent Variable: Total QOL score

	QOL (I)	QOL (J)	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Scheffe	1	2	-1.531	1.740	0.856	-6.42	3.36
		3	-4.744	1.760	0.066	-9.69	0.20
		4	-6.931*	2.141	**0.016**	-12.94	-0.92
	2	1	1.531	1.740	0.856	-3.36	6.42
		3	-3.213	1.345	0.129	-6.99	0.56
		4	-5.400*	1.815	**0.033**	-10.50	-0.30
	3	1	4.744	1.760	0.066	-0.20	9.69
		2	3.213	1.345	0.129	-0.56	6.99
		4	-2.187	1.835	0.701	-7.34	2.97
	4	1	6.931*	2.141	**0.016**	0.92	12.94
		2	5.400*	1.815	**0.033**	0.30	10.50
		3	2.187	1.835	0.701	-2.97	7.34

*The mean difference is significant at the 0.05 level.

The results showed Post hoc analysis by Scheffe's multiple comparisons test. Homogeneity of variance was not significantly different from Levene's test (p = 0.062 > α 0.05). Moreover, mean total QOL score of at least one group was significantly different from other groups (p = 0.001 < α 0.05). Therefore, Post hoc analysis by Scheffe's multiple comparisons test was used to explore which group was significantly different from other groups. The result showed that mean QOL total score of leader group was significantly higher than only antiretroviral therapy receiving group (p = 0.016 < α 0.05) and mean QOL total score of leader group also was significantly higher than member (no home visited) group (p = 0.033 < α 0.05) but mean total QOL score of leader group was not significantly higher than member and home visited group (p = 0.701 > α 0.05) .

15. Hospital activity in holistic care service

The dependent variable was a total QOL score. The independent variable was a hospital activity in holistic care. The hospital activity in holistic care was divided into participated holistic care center, non-participated holistic care center, and non-participated and non-club. Therefore, analysis of variance (ANOVA) was used to compare the means total QOL score between three groups. The analysis results were shown in three tables,

H0: $\sigma^2_{\text{participated}} = \sigma^2_{\text{non-participated}} = \sigma^2_{\text{non-participated non-club}}$

Ha: $\sigma^2_{\text{participated}} \neq \sigma^2_{\text{non-participated}} \neq \sigma^2_{\text{non-participated non-club}}$

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
2.845	2	357	0.059

The result showed the test of homogeneity of variances. Homogeneity of variance was not significantly different (p= 0.059 > α 0.05). Do not reject null hypothesis. Therefore, three groups of patients which defined by hospital activity in holistic healthcare are equal.

Descriptive

	Hospital	N	Mean	SD	SE	95% CI		Min	Max
						Lower	Upper		
Overall score	participated	306	85.36	10.418	0.596	84.19	86.53	44	110
	non-participated	29	83.48	12.611	2.342	78.69	88.28	58	109
	non-club	25	78.56	13.964	2.793	72.80	84.32	50	97
	Total	360	84.74	10.989	0.579	83.60	85.88	44	110

The result showed the descriptive data of each hospital participation in holistic care service as follows; number, mean, standard deviation, standard error of mean, lower bound of 95% confidence interval, upper bound of 95% confidence interval, minimum and maximum. Mean QOL total scores were different between participated group, non-participated group, and non-participated non-club group.

H0: $\mu\ \text{QOL}_{\text{participated}} = \mu\ \text{QOL}_{\text{non-participated}} = \mu\ \text{QOL}_{\text{non-club}}$

Ha: $\mu\ \text{QOL}_{\text{participated}} \neq \mu\ \text{QOL}_{\text{non-participated}} \neq \mu\ \text{QOL}_{\text{non-club}}$

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1119.319	2	559.659	4.731	**0.009**
Within Groups	42234.137	357	118.303		
Total	43353.456	359			

The result showed the analysis of variance test which compared mean between participated group, non-participated group, and non-club group. P-value from ANOVA was significantly different (p = 0.009 < α 0.05). Reject null hypothesis. Therefore, mean QOL total of at least one group was significantly different from other groups.

Multiple Comparisons
Dependent Variable: Total QOL

	QOL (I)	QOL (J)	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Scheffe	1	2	1.880	2.113	0.674	-3.31	7.07
		3	6.803*	2.262	**0.012**	1.24	12.36
	2	1	-1.880	2.113	0.674	-7.07	3.31
		3	4.923	2.968	0.254	-2.37	12.22
	3	1	-6.803*	2.262	**0.012**	-12.36	-1.24
		2	-4.923	2.968	0.254	-12.22	2.37

*The mean difference is significant at the 0.05 level.

The result showed Post hoc analysis by Scheffe's multiple comparisons test. Homogeneity of variance was not significantly different from Levene's test ($p = 0.059 > \alpha\ 0.05$). Moreover, mean QOL total score of at least one group was significantly different from other groups ($p = 0.009 < \alpha\ 0.05$). Therefore, Post hoc analysis by Scheffe's multiple comparisons test was used to explore which group was significantly different from other groups. The result shows that mean QOL total score of participated group was significantly higher than non-club group ($p = 0.012 < \alpha\ 0.05$) but mean QOL total score of participated group was not significantly higher than non-participated ($p = 0.674 > \alpha\ 0.05$) and mean QOL total score of non-participated group was not significantly higher than non-club group ($p = 0.254 > \alpha\ 0.05$).

16. Self-care behavior score

The dependent variable was a QOL total score. The independent variable was an self-care behavior score. Therefore, Pearson's Correlation was used to analyze the relationship between QOL total score and self-care behavior score. The analysis results were showed in Table,

H0: $\rho_{\text{Self-care.QOL}} = 0$

Ha: $\rho_{\text{Self-care.QOL}} \neq 0$

Correlation

		Adherence score	QOL
Adherence score	Pearson Correlation	1	0.295**
	Sig. (2-tailed)		**0.000**

**Correlation is significant at the 0.01 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between total QOL score and self-care behavior score.

1) P-value from Pearson's Correlation was significantly different (p= 0.000 < α 0.05). Reject null hypothesis. Therefore, self-care behavior score was significantly correlate with QOL total score.

2) Pearson's Correlation (r) was 0.295.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.087.

The result showed that the self-care behavior score was a weak significant predictor of the QOL total score (r = 0.295, p= 0.000). The variance within self-care behavior score could explain 8.7% of variance within total QOL score.

17. Social support score

The dependent variable was a QOL total score. The independent variable was an social support score. Therefore, Pearson's Correlation was used to analyze the relationship between QOL total score and social support score. The analysis results were showed in table,

H0: $\rho_{\text{Social support.QOL}} = 0$

Ha: $\rho_{\text{Social support.QOL}} \neq 0$

Correlations

		Adherence score	QOL
Adherence score	Pearson Correlation	1	0.478**
	Sig. (2-tailed)		**0.000**

**Correlation is significant at the 0.01 level (2-tailed).

The result showed the Pearson's correlation test which analyzed the relationship between total QOL score and social support score.

1) P-value from Pearson's Correlation was significantly different (p= 0.000 < α 0.05). Reject null hypothesis. Therefore, social support score was significantly correlated with QOL total score.

2) Pearson's Correlation (r) was 0.478.

3) Direction was positive.

4) Coefficient of Determination (R^2) was 0.228.

The result showed that the self-care behavior score was a weak significant predictor of the QOL total score (r = 0.478, p= 0.000). The variance within self-care behavior score could explain 22.8% of variance within total QOL score.

Appendix E : Correlations matrix of 19 independent variables and total QOL

	total QOL	age	female	widowed/divorced/separated	more than primary	stable occupation	family income	disclosure HIV status	duration of HIV infection	duration of ART	CD4 cell count	no OI or comorbidity	adherence score	HIV-related symptoms score	patient member	patient leader	hospital non-participated holistic center	hospital non-club at clinic	self-care behavior overall score	social support overall score
total QOL	1																			
age	0.056	1																		
female	*0.099	-0.08	1																	
widowed/divorced/separated	*-0.089	0.054	**0.161	1																
more than primary	0.061	**-0.179	-0.032	-0.062	1															
stable occupation	0.065	*0.1	-0.037	-0.031	**0.186	1														
family income	0.053	-0.075	-0.044	-0.011	**0.18	0.033	1													
disclosure HIV status	**0.149	0.058	0.03	-0.013	*0.095	0.017	-0.02	1												
duration of infection	*0.108	*0.112	**0.137	0.018	0.007	**0.153	-0.027	**0.213	1											
duration of ART	**0.143	**0.159	*0.094	0.008	-0.015	0.032	0.019	**0.165	**0.485	1										
CD4 cell count	**0.128	0.02	**0.162	0.056	*0.112	-0.049	-0.012	**0.135	**0.249	**0.283	1									
no OI or comorbidity	*0.122	0.035	0.082	0.003	-0.017	*-0.111	-0.032	0.035	0.038	0.023	0.057	1								
adherence score	**0.156	*0.115	0.06	*0.089	0.018	*0.101	0.055	0.013	*0.109	0.051	-0.038	*0.099	1							
HIV-related symptoms	**-0.320	0.022	-0.009	*-0.091	-0.032	*-0.096	*-0.091	-0.03	-0.068	*-0.102	-0.078	**-0.147	**-0.184	1						
patient member	-0.008	0.068	0.017	0.026	**-0.176	-0.019	*-0.094	0.054	*-0.115	*-0.154	*-0.101	0.005	0.024	0.032	1					
patient leader	**0.136	0.015	0.078	-0.015	**0.133	0.051	-0.036	*0.121	**0.238	**0.219	**0.164	0.009	-0.058	0.021	*-0.624	1				
hospital non-participated	-0.034	0.073	-0.015	-0.022	-0.062	0.057	*-0.118	0.052	-0.013	0.081	-0.003	-0.074	-0.055	0.072	-0.063	0.034	1			
hospital non-club	**-0.154	*0.093	-0.006	0.08	-0.085	-0.03	-0.046	-0.073	-0.045	*-0.104	-0.029	-0.029	0.058	-0.044	-0.071	-0.075	-0.081	1		
self-care behavior score	**0.295	-0.024	**0.259	0.031	0.074	*0.104	*0.122	*0.114	**0.168	*0.102	0.037	0.022	**0.219	**-0.258	0.022	0.073	0.037	-0.02	1	
social support score	**0.478	-0.024	**0.143	-0.048	0.064	0.053	0.002	*0.098	**0.151	0.066	0.047	0.023	*0.121	**-0.148	-0.067	**0.171	-0.049	-0.02	**0.282	1
Mean	84.74	36.78	0.61	0.2	0.3	0.46	4398.61	0.53	6.9	4.05	375.54	0.57	89.953	16.65	0.72	0.13	0.08	0.07	72.91	95.27
SD	10.989	4.502	0.488	0.403	0.46	0.499	4614.7	0.5	3.984	2.234	194.851	0.495	9.471	14.301	0.451	0.34	0.273	0.255	7.892	9.195

* Sig p< 0.05 ** Sig p< 0.01

Appendix F : The variables used in multiple regression analysis statistics in this study

No.	Independent variables used in MRA		Reference (Dummy)	
	Variable	***Meaning***	***Variable***	***Meaning***
1	age	-	-	-
2	Gender(female=1,male=0)	Female=1	-	Male=0
3	widowed/divorced/ separated	-	non-widowed/ divorced/ separated	• Couples and stay together • Couples but no stay together • Single
4	more than primary education	• Initial Secondary • End Secondary • College diploma/ High vocational diploma • Bachelor degree	less or equal the primary education	• Illiterate • Primary e
5	stable occupation	• Agriculturist • Owner business • Private company • Government officer	non- stable occupation	• Wage earner or laborer • Unemployed
6	family income	-	-	-
7	disclosure HIV status	-	Closed HIV status	-
8	duration of HIV infection	-	-	-
9	duration of ART	-	-	-
10	CD4 cell count	-	-	-
11	presence of OI or comorbidity (no=1,yes=0)	no=1	-	yes=0
12	adherence score	-	-	-
13	HIV-related symptoms score	-	-	-
14	patient member	• Member (joined group of health education) • Member and home visited	patients only receiving drug	-
15	patient leader	-	patients only receiving drug	-
16	hospital non-participated holistic center but have club	-	hospital participated holistic care center	-
17	hospital non-participated holistic center and non-club	-	hospital participated holistic care center	-
18	self-care behavior overall score	-	-	-
19	social support overall score	-	-	-

Appendix G : The coefficients of each domain of QOL

Coefficients of physical domain score

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
1		b	SE	Beta			Tolerance	VIF
	(Constant)	7.131	2.775		2.569	0.011		
	age	0.069	0.038	0.089	1.829	0.068	0.871	1.148
	gender(female=1,male=0)	0.254	0.353	0.036	0.720	0.472	0.844	1.185
	widowed/divorced/separated	-0.846	0.436	-0.089	-1.941	0.053	0.939	1.065
	more than primary education	0.165	0.377	0.022	0.437	0.663	0.836	1.197
	stable occupation	-0.475	0.340	-0.068	-1.399	0.163	0.875	1.142
	family income	0.000029	0.000	0.039	0.807	0.420	0.902	1.109
	disclosure HIV status	0.326	0.336	0.047	0.970	0.333	0.892	1.121
	duration of HIV infection	-0.076	0.048	-0.087	-1.573	0.117	0.677	1.478
	duration of ART	0.250	0.092	**0.146**	2.725	****0.007**	0.688	1.454
	CD4 cell count	0.002	0.001	**0.103**	1.983	***0.049**	0.845	1.184
	presence of OI or comorbidity (no=1,yes=0)	0.658	0.331	**0.093**	1.989	***0.048**	0.935	1.069
	adherence score	0.016	0.018	0.043	0.879	0.380	0.881	1.135
	HIV-related symptoms score	-0.062	0.012	**-0.254**	-5.150	****0.000**	0.844	1.184
	patient member	0.208	0.481	0.027	0.433	0.666	0.533	1.875
	patient leader	0.276	0.645	0.027	0.428	0.669	0.521	1.921
	hospital non-participated holistic center but have club	-0.154	0.605	-0.012	-0.255	0.799	0.925	1.081
	hospital non-participated holistic center and non-club	-1.050	0.650	-0.077	-1.615	0.107	0.917	1.090
	self-care behavior overall score	0.045	0.023	0.101	1.932	0.054	0.759	1.317
	social support overall score	0.112	0.019	**0.295**	6.044	****0.000**	0.865	1.156
	R	0.549						
	R^2	0.302						
	Adj R^2	0.261						
	R^2 Change	0.302						
	F Change	7.331						
	Sig	0.000						

a Dependent Variable : Physical domain score

* significant level at p<0.05

** significant level at p<0.01

Coefficients of psychological domain score

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
1		b	SE	Beta			Tolerance	VIF
	(Constant)	0.921	2.979		0.309	0.757		
	age	0.064	0.040	0.075	1.577	0.116	0.871	1.148
	gender(female=1,male=0)	-0.123	0.379	-0.016	-0.323	0.747	0.844	1.185
	widowed/divorced/separated	-0.996	0.406	**-0.115**	-2.452	***0.015**	0.939	1.065
	more than primary education	-0.012	0.404	-0.001	-0.031	0.975	0.836	1.197
	stable occupation	0.140	0.365	0.018	0.383	0.702	0.875	1.142
	family income	0.000026	0.000	0.032	0.684	0.494	0.902	1.109
	disclosure HIV status	0.176	0.361	0.023	0.487	0.626	0.892	1.121
	duration of HIV infection	-0.095	0.052	-0.099	-1.833	0.068	0.677	1.478
	duration of ART	0.119	0.086	0.076	1.388	0.166	0.688	1.454
	CD4 cell count	-0.000027	0.001	-0.001	-0.029	0.977	0.845	1.184
	presence of OI or comorbidity (no=1,yes=0)	0.547	0.355	0.071	1.541	0.124	0.935	1.069
	adherence score	0.012	0.019	0.030	0.640	0.522	0.881	1.135
	HIV-related symptoms score	-0.061	0.013	**-0.228**	-4.733	****0.000**	0.844	1.184
	patient member	0.814	0.516	0.096	1.576	0.116	0.533	1.875
	patient leader	1.117	0.693	0.099	1.612	0.108	0.521	1.921
	hospital non-participated holistic center but have club	-0.499	0.649	-0.035	-0.769	0.443	0.925	1.081
	hospital non-participated holistic center and non-club	-1.273	0.698	-0.084	-1.825	0.069	0.917	1.090
	self-care behavior overall score	0.039	0.025	0.081	1.595	0.112	0.759	1.317
	social support overall score	0.155	0.020	**0.372**	7.806	****0.000**	0.865	1.156
	R	0.576						
	R^2	0.331						
	Adj R^2	0.294						
	R^2 Change	0.331						
	F Change	8.870						
	Sig	0.000						

a Dependent Variable : Psychological domain score

* significant level at $p<0.05$

** significant level at $p<0.01$

Coefficients of social relationship domain score

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
1		b	SE	Beta			Tolerance	VIF
	(Constant)	1.394	1.613		0.864	0.388		
	age	0.004	0.022	0.010	0.203	0.839	0.871	1.148
	gender(female=1,male=0)	-0.087	0.205	-0.022	-0.422	0.673	0.844	1.185
	widowed/divorced/separated	-0.312	0.236	-0.065	-1.323	0.187	0.939	1.065
	more than primary education	-0.058	0.219	-0.014	-0.263	0.793	0.836	1.197
	stable occupation	0.010	0.197	0.003	0.053	0.958	0.875	1.142
	family income	0.000017	0.000	0.042	0.843	0.400	0.902	1.109
	disclosure HIV status	0.407	0.195	**0.105**	2.084	***0.038**	0.892	1.121
	duration of HIV infection	0.018	0.028	0.036	0.633	0.527	0.677	1.478
	duration of ART	-0.007	0.050	-0.008	-0.137	0.891	0.688	1.454
	CD4 cell count	0.001	0.001	0.082	1.591	0.112	0.845	1.184
	presence of OI or comorbidity (no=1,yes=0)	0.297	0.192	0.076	1.544	0.123	0.935	1.069
	adherence score	0.013	0.010	0.065	1.285	0.200	0.881	1.135
	HIV-related symptoms score	-0.008	0.007	-0.059	-1.147	0.252	0.844	1.184
	patient member	0.671	0.279	**0.156**	2.402	***0.017**	0.533	1.875
	patient leader	1.170	0.375	**0.205**	3.121	****0.002**	0.521	1.921
	hospital non-participated holistic center but have club	0.156	0.351	0.022	0.444	0.657	0.925	1.081
	hospital non-participated holistic center and non-club	-0.650	0.378	-0.085	-1.722	0.086	0.917	1.090
	self-care behavior overall score	0.005	0.013	0.022	0.406	0.685	0.759	1.317
	social support overall score	0.065	0.011	**0.309**	6.063	****0.000**	0.865	1.156
	R	0.486						
	R^2	0.236						
	Adj R^2	0.194						
	R^2 Change	0.236						
	F Change	5.541						
	Sig	0.000						

a Dependent Variable : Social relationship domain score

* significant level at $p<0.05$

** significant level at $p<0.01$

Coefficients of environment domain score

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
1		b	SE	Beta			Tolerance	VIF
	(Constant)	7.842	3.326		2.358	0.019		
	age	0.044	0.045	0.050	0.974	0.331	0.871	1.148
	gender(female=1,male=0)	0.264	0.424	0.032	0.624	0.533	0.844	1.185
	widowed/divorced/separated	-0.503	0.487	-0.051	-1.032	0.303	0.939	1.065
	more than primary education	-0.133	0.452	-0.015	-0.295	0.768	0.836	1.197
	stable occupation	0.538	0.407	0.067	1.321	0.187	0.875	1.142
	family income	-0.000017	0.000	-0.020	-0.393	0.695	0.902	1.109
	disclosure HIV status	0.379	0.403	0.047	0.941	0.347	0.892	1.121
	duration of HIV infection	-0.054	0.058	-0.053	-0.925	0.356	0.677	1.478
	duration of ART	-0.108	0.103	-0.061	-1.057	0.291	0.688	1.454
	CD4 cell count	0.001	0.001	0.074	1.501	0.134	0.845	1.184
	presence of OI or comorbidity (no=1,yes=0)	-0.185	0.396	-0.023	-0.467	0.641	0.935	1.069
	adherence score	0.023	0.021	0.054	1.062	0.289	0.881	1.135
	HIV-related symptoms score	-0.042	0.014	**-0.151**	-2.914	****0.004**	0.844	1.184
	patient member	-0.015	0.576	-0.002	-0.026	0.979	0.533	1.875
	patient leader	0.263	0.773	0.022	0.341	0.734	0.521	1.921
	hospital non-participated holistic center but have club	-0.214	0.725	-0.015	-0.296	0.767	0.925	1.081
	hospital non-participated holistic center and non-club	-2.798	0.779	**-0.178**	-3.591	****0.000**	0.917	1.090
	self-care behavior overall score	0.049	0.028	0.097	1.780	0.076	0.759	1.317
	social support overall score	0.130	0.022	**0.300**	5.861	****0.000**	0.865	1.156
	R	0.480						
	R^2	0.230						
	Adj R^2	0.187						
	R^2 Change	0.230						
	F Change	5.360						
	Sig	0.000						

a Dependent Variable : Environment domain score

* significant level at p<0.05

** significant level at p<0.01

BIOGRAPHY

The author, Miss Hathairat Khotsomphong, was born on September 4th 1979 in Nakhon Ratchasima, Thailand. She obtained the Bachelor of Pharmacy from the Faculty of Pharmacy, Silpakorn University in 2002. She enrolled in this Master of Science in Social and Administrative Pharmacy, Chulalongkorn University in 2008. She currently works at Nonthai Hospital, community hospital in Nakhon Ratchasima province.