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Health-related quality of life among patients with chronic obstructive pulmonary disease in Ho Chi Minh City

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ABSTRACT

Introduction: Chronic obstructive pulmonary disease (COPD) is a chronic disease that causes illness and death over the whole world. There are a little available data about COPD patients in Vietnam and how the disease affects their health related quality of life (HRQL).

Aim: The aim of this study was to examine HRQL among patients with COPD in Ho Chi Minh City, Vietnam, and investigate differences in HRQL between men and women with COPD.

Method: This was a descriptive study with a cross-sectional design. The method was quantitative by using a questionnaire. The study was performed at the respiratory department at Cho Ray Hospital in Ho Chi Minh City, Vietnam. The sampling was made through a consecutive sample. The questionnaire was based on Short Form 36 (SF-36) which is a widely used questionnaire to measure HRQL. The answers from the questionnaires were turned into a scale where 0 represent the lowest possible HRQL and 100 represent the highest possible HRQL.

Results: The results showed that patients with COPD have a low HRQL. Mean value for HRQL in the total group of respondents was 22.42. The result also showed that women suffering from COPD have a significant lower HRQL than men concerning total HRQL (P-value= 0.04), general health (P-value= 0.02) and pain (P-value= 0.05).

Conclusion: Patients suffering from COPD in Ho Chi Minh City have a low score of HRQL. Better routines and knowledge about the symptoms and caring for these patients are needed.

Keywords: Chronic Obstructive Pulmonary Disease, Health related quality of life, Vietnam, SF-36

ABSTRAKT

Introduktion: Kronisk obstruktiv lungsjukdom (KOL) är en kronisk sjukdom som leder till ohälsa och död över hela världen. Det finns väldigt lite forskning om KOL patienter i Vietnam och hur deras sjukdom påverkar deras livskvalitet.

Syfte: Syftet med denna studie var att undersöka livskvalitet hos patienter med KOL i Ho Chi Minh City, Vietnam, samt att undersöka om det finns en skillnad mellan män och kvinnor gällande livskvalitet vid KOL.

Metod: Studien är en deskriptiv studie med en tvärsnittsdesign. Metoden är kvantitativ och ett frågeformulär användes. Studien gjordes på lungavdelningen på Cho Ray Hospital i Ho Chi Minh City, Vietnam. Urvalet gjordes konsekutivt. Frågeformuläret var baserat på Short Form 36 (SF-36) som är ett väl använt frågeformulär för att mäta livskvalitet. Svaren från frågeformuläret omvandlades till siffror på en skala mellan 0 och 100 där 0 representerar lägsta tänkbara livskvalitet och 100 representerar högsta möjliga livskvalitet.

Resultat: Resultatet visade att patienter med KOL har en låg livskvalitet. Medelvärdet för total livskvalitet för hela undersökningsgruppen var 22,42. Resultatet visar även att kvinnor med KOL har en signifikant lägre livskvalitet än männen gällande total livskvalitet (P-värde= 0,04) och skalorna generell hälsa (P-värde 0,02) och smärta (P-värde= 0,05).

Slutsats: Patienter med KOL i Ho Chi Minh City har en låg nivå av livskvalitet. Bättre rutiner och kunskap om symtom och vårdande av dessa patienter behövs.

Nyckelord: Kronisk obstruktiv lungsjukdom, livskvalitet, Vietnam, SF-36

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1. INTRODUCTION

1.1 Health related quality of life

World Health Organization (WHO) defines health related quality of life (HRQL) as “individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHO, 1997).

Quality of life is a complicated and abstract definition of a subjective sense of well-being. The definition is a multidimensional evaluation of different factors of an individual’s life circumstances such as physical, psychological, social and spiritual dimensions. Quality of life must be considered in context to values and cultures of the individual (Haas, 1999).

Quality of life is similar to the definition of health, a multidimensional concept and cannot be given in a distinct definition. HRQL is more defined about functioning and well-being by ill health, disease and treatment. Quality of life as a measurement can be a help for evaluating treatment because it shows clinical changes considering well-being and functioning of the patient (Sullivan & Tunsäter, 2001).

1.2 Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a term that covers several diseases which all harms the lung function. Chronic bronchitis and emphysema used to be individual terms but are now included in the overbridged COPD term (Ledin, 2011).

1.3 Symptoms of COPD

Common symptoms of COPD are breathlessness, chronic cough, added sputum production and respiratory infections - often deep and for a long time with involuntary weight loss as a result. Breathing causes a lot of extra energy that also can lead to weight loss. COPD affects the body and tissues to attract fluid, which affects the heart's ability to pump. Symptoms of COPD begin weakly and increases with time, and it may take time before the patient receives the correct diagnosis. The symptoms are often mistaken for signs of age (World Health Organization, 2013; Ledin, 2011). As the disease goes worse, the patient will experience more fatigue. Losing weight and appetite is common. Some people suffering from COPD feel sad and get depressed (Astra Zeneca, 2010). Patients with COPD state that breathlessness is one

of the worst symptoms. Many patients state that their symptoms vary from day to day and different parts of the day. Symptoms can also vary with the weather (Barnett, 2005).

1.4 Diagnosis

The diagnosis is made by a description of symptoms, followed by a physical examination. After the physical examination the patient will go through a couple of other examinations, for example a spirometry test to test lung functions. The spirometry test measures in- and out airflow together with the velocity that the air passes by. COPD patients have difficulty to quickly empty their lungs of air, and the cause is that the disease narrow bronchus and reduce cellular oxygen uptake. The less uptake of oxygen leads to fatigue (Ledin, 2011).

The spirometry-test shows in- and out airflow by measure the resistance in the airways. The patient makes a maximum rapid exhalation after a maximal inhalation. The test measures the volume of air the patient exhales in the first second, forced expiratory volume (FEV_1). Spirometry also measure forced vital capacity (FVC) which shows how much air a human can exhale after a maximum inhale. To diagnose COPD the spirometry test has to show $FEV_1/FVC < 70$ percent. If the patient is over 65 years old FEV_1/FVC has to show < 60 percent. Spirometry test is also used to diagnose asthma, then bronchodilating medicine is used after the first exhale. A person with asthma exhales with different result after using bronchodilating medicine which a patient with COPD do not (Midgren, 2012).

COPD can be divided into four different stages. In the first stage lung function is almost normal, but a higher level of phlegm and a chronic cough exists. FEV_1 is more than 80 percent. In the second stage patients can not notice they have problem, although the airflow is affected. The cough is chronic and the phlegm is, as in stage one, higher. The patient might feel more tired than before. FEV_1 is around 50-70 percent. In the third stage the airflow is worse and the patient can experience breathlessness more frequently. In this stage the patient can go through episodes of worsening, called exacerbations. FEV_1 is 30-49 percent. In the fourth stage the airflow is much impaired and it is common that the patient need oxygen to avoid respiratory failure. FEV_1 is now <30 percent (Takeda Pharma AB, 2013).

1.5 Risk factors for COPD

Risk factors for COPD are for example outdoor air pollution, tobacco smoking and occupational dusts and chemicals. Tobacco smoking is the primary cause of COPD in the whole world (WHO, 2013).

One study made in Vietnam shows that 93.4 percent of the participants were aware of the risk of serious illness caused from smoking and passive smoking. Current smokers had less knowledge about the risk of serious illness than current non-smokers did (83.3 vs 95.1 %) (Minh An et al., 2013).

1.6 Living with COPD

When the damage is done to the respiratory system, it cannot be repaired. The simplest way of treatment, which can make a big difference and prevent worsening of the disease, is to quit smoking immediately (Ledin, 2013).

When the oxygen concentration in the air is not enough for the patient oxygen can be administered to prevent hypoxia. To get oxygen as a home treatment the patient must be smokeless. Ortega Ruiz et al. (2014) did not find that this treatment improve survival for these patients.

Good nutrition is important for patients with COPD. The diet does not affect the disease primary but affect the patients' fortitude and ability to improve their level of condition. If the patient loses weight, which is common for patients with a high stage of COPD, it is important to eat food with a lot of calories (Actra Zeneca, 2010). Food and drink with a high calorie substance can support the muscle strengths which make it easier to breathe (Itoh, Tsuji, Nemoto, Nakamura & Aoshiha, 2013).

Exercise is another important self-care treatment. Exercise improves condition and lung capacity that leads to a better oxygen uptake. A better oxygen uptake leads to higher well-being, higher quality of life, strengthening muscles and a higher energy level (Actra Zeneca, 2010). Patients participating in a pulmonary rehabilitation program for three weeks, showed a significant improvement in HRQL. The program included medical management, education, exercise training, and psychosocial counseling. HRQL was measured by Short Form 36 (SF-36) and showed a positive change for five of the eight scales of HRQL (physical function, vitality, role emotional, mental health, and health change) (Boueri, 2001).

People with severe COPD can experience difficulties and breathlessness in daily activities like washing and getting dressed. Patients stated that it affects their ability of a normal life and that on a bad day some do not even get up of bed for a whole day. Patients also stated that they need a lot of help from family members to manage daily activities. Patients wanted to be independent and felt upset to be dependent and show their family members that they cannot manage on their own. Some patients were unable to climb the stairs and needed to install a stair lift in their house. Some people even felt that they could not go out of their houses because of the symptoms of COPD limited the patients too much. It can be difficult to plan activities in advance because it is not possible to prevent the physical condition. Symptoms and inability in daily activities can cause frustration, anxiety and panic. Patients with COPD can experience loss of occupation, social relationship and intimacy (Barnett, 2005).

A review study made by Asplund and Sjöström (2008) presented different aspects that individuals suffering from COPD experience. The different aspects founded were every day limitations for activities because of dyspnea, physical or environmental limitations and social isolations while feeling trapped and losing relations. Individuals suffering from COPD also felt a need for support and felt depended for help.

Hakkak, Forbes and Dowson (2014) investigated patient's need of information and understanding about COPD in a late stage of the disease. The result of the study showed that patients knew very little about end-of-life questions and care planning. But the authors' conclusion was that patients in the study were unwilling to discuss these questions although they seemed to need it in their stage of the disease. A better solution could be to inform the patient about these sensitive questions in an earlier stage in the disease, if the patients are interested and willing to discuss it.

1.7 COPD and genders

In Vietnam it is not generally acceptable for women to smoke and it is often considerable of low class (Coronado, 2008). However female hormones and genetics can increase the possibility of getting COPD and affect the severity of the symptoms. Differences can for example affect lung function and levels of inflammatory cytokines. Female smokers with a first-degree family member with severe COPD, tend to have a lower lung function compared to male smokers. Female COPD patients did also have a higher exacerbation rate and a

shorter time to first exacerbation than male COPD patients. Women also reported a lower HRQL with increased anxiety and depression despite less impaired lung functioning than men (Kamil, Pinzon & Foreman, 2013).

A study made by Martinez et al. (2012) investigated if there were any difference in symptoms and care delivery among men and women with COPD. They found a significant difference between the genders in three aspects of symptoms. Men reported a significant higher rate of phlegm and women reported a significant higher rate for anxiety and osteoporosis. They found no significant difference for self-rated health and limitations even if men reported a higher number in all of the aspects. Another study investigated differences in fatigue and physical capacity between men and women diagnosed with COPD. No significant differences between the genders regarding physical capacity and health were founded (Tödt et al., 2014).

1.8 COPD in the world, Asia and Vietnam

WHO estimate that 64 million people in the world, suffered from COPD in 2004. In 2005 over three million people died from COPD. Over 90 percent of all people died of COPD lived in low- or middle-income countries (WHO, 2013).

A study made by the regional COPD working group (2003), estimates the prevalence of COPD in 12 Asian countries. The study shows that 56 553 000 people and 6.3 percent of all people over 30 years old, suffers from moderate to severe COPD. The study showed that 2 068 000 people and 6.7 percent of all people over 30 years old living in Vietnam suffered from moderate to severe COPD. Vietnam got the highest percentage ratio of people over 30 year's old living with moderate to severe COPD of all the Asian countries in this study. The authors found that there is a very little data on the prevalence of COPD in Asia. The same study compares the percentage ratio of Asian countries (6.3%) with other parts of the world. Asia got lower percentage ratio than Russia (7.6%) and Nepal (11.1%), and the same percentage ratio as Norway (6.3%) and Denmark (6.4%), which is a higher percentage ratio than United States of America (4.8%) and United Kingdom (5.0%) (COPD working group, 2003).

1.9 COPD and nursing

It is important that nurses have relevant knowledge about COPD and how it affects patients different and causes disabilities. COPD is a chronic disease and there is no way to cure the

disease, but there are many things nurses can do to help patients to live with their disease. Nurses have expressed it to be challenging but giving to treat a patient with COPD. To be able to improve HRQL for their patients, it is important that nurses use a positive approach while treating (Barnett, 2008).

1.10 COPD and HRQL

A study made by Boueri (2001) used SF-36 to measure and compare HRQL between people with COPD and healthy people. The study showed that people with COPD had a significant lower HRQL in six of the eight scales of HRQL. These six scales were physical function, role physical, general health, vitality, social function, and role emotional. Scores for the other two scales, pain and mental health were similar in the two groups.

In a study by Weldam, Lammers, Decates and Schuurmans (2013) the authors were searching for a connection if psychological factors contribute to affect HRQL. Positive perceptions about COPD and less depressive symptoms were associated with better HRQL. Patients with a positive view of their depressive symptoms were also connected with a better HRQL.

Barnett (2005) found that even though many patients with COPD are severely affected by the symptoms of their disease, many patients considered their HRQL to be fairly good. These patients are trying to make as much as possible and express that it could be worse. Another thing that is expressed to be important to increase HRQL is the relationship to family and friends.

A study made by Ståhl et al. (2005) showed a significant difference in health related quality of life between patients in different stages of COPD. Patients in early stage COPD got higher HRQL scores than those in late stages of COPD. These data regard the physical component summary of the test. The mental component summary for HRQL did not show any statistical difference between different stages of COPD patients. A study by Santánna (2003) investigated HRQL in a low- income population with COPD. The study investigated if there were any differences between patients requiring long-term oxygen treatment (LTOT) and COPD patients without oxygen treatment. There result showed that patients that required LTOT had a significant lower result of HRQL in the scales social functioning and physical functioning.

2. THEORETICAL FRAMEWORK

The used theoretical framework for this study was Care Philosophy of Patricia Benner and Judith Wrubel, which is presented by Jahren and Kristoffersen in their book “Grundläggande omvårdnad 4” (2006). Benner and Wrubel begin their theory by criticizing other theories for describing an ideal of caring and not being enough influenced by practical nursing. The theory by Benner and Wrubel is based on practical nursing with concrete examples. Benner and Wrubel think that nurses should help their patients to find out what is important for the individual in aim to help them live with their disease and lost functions. Well-being is more important than focusing on the health problem. Nursing should be about listening and helping individuals to find a meaning, and focus on their well-being while coping with lost functions. Benner and Wrubel also write that nurses have to see every patient as an individual. Lost functions and diseases have a different meaning depending on embodied intelligence, background meaning and concerns of the patient (Jahren Kristoffersen, 2006).

This framework was relevant for the study because it focusing on how nurses can let their patients estimate their health and lost functions caused by their disease, and use that to work towards a better well-being. This correlates with the aim of measuring HRQL.

3. RATIONALE OF RESARCH

COPD is a health related problem worldwide. COPD affects a lot of physical functions and also affects mental health and HRQL. Therefore it is important that health care providers are aware of the problem and understand which lost functions COPD may cause. Healthcare providers also need to see how the disease affects patients and their HRQL to be able to support and help them manage with their disease and lost functions. There is very little objective data on COPD available in Asia, therefore the authors hoped to bring more information about COPD and the effects on HRQL among patients with COPD in Ho Chi Minh City, Vietnam.

4. AIM

The aim of this study was to examine HRQL among patients with COPD in Ho Chi Minh City, Vietnam.

5. RESEARCH QUESTIONS

1. What are the levels of HRQL among COPD patients in Ho Chi Minh City, Vietnam?
2. Is there any difference in HRQL among men and women diagnosed with COPD in Ho Chi Minh City, Vietnam?

6. METHOD

6.1 Design

This was a nonexperimental descriptive study with a cross-sectional design. The method was quantitative, using a questionnaire. The quantitative method provides a lot of data and it is time effective (Eliasson, 2006).

6.2 Setting

The study was carried out at the respiratory department at Cho Ray Hospital in Ho Chi Minh City, Vietnam during two weeks in April 2014.

6.3 Sample

All patients, both males and females, who got the diagnosis COPD at Cho Ray Hospital in Ho Chi Minh City were invited to participate in the study by using consecutive sampling. The inclusion criteria's to participate were:

1. Patients with COPD over 18 years old
2. Patients able to write and read or could be helped to fill in the questionnaire
3. Patients at respiratory department at Cho Ray hospital in Ho Chi Minh City, Vietnam
4. Patients who were willing to participate

Exclusion criteria's were:

1. Patients were too severe to answer the questionnaire
2. Patients did not answer three or more of the questions in the questionnaire

Of the invited 71 patients, 62 chose to participate. Five patients were too severe and four patients declined to participate.

6.3.1 Demographic information of patients with COPD

Demographic information is presented in table 1.

The total number of patients participated was 62. Of the respondents 48 (77%) were men and 14 (23%) women. The ages of the patients were between 29-93 years, and the mean age was 71.15. Of 62 participating patients, 59 (95.16%) were married and only two (3.22%) were singles. The majority of the patients (61.28%) had consequently no education or education though primary school. About 36 (58.06%) of the participants had one or several other diseases but COPD. Of the patients with other diseases 23 (37.10%) had hypertension where of 15 were men and eight were women. There were six (9.68%) patients with several diseases. All six of them had a combination of hypertension and one more disease, for example hypertension and diabetes, hypertension and cardiovascular disease, hypertension and other diseases, which is reported under “several diseases”. Only three patients had received a health education which means that 59 patients (95.16%) had not received any education about their disease COPD.

In the questionnaire there was a question about respiratory functional parameter (FVC/FEV₁). The healthcare professionals did not document the patients FVC or FEV₁-values in the journal that mean we could not get any information about the stages of COPD.

Table 1. Demographic information.

Demographic information	Total (n=62)			Male (n=48)			Female (n=14)		
	N	%	Mean ±SD	N	%	Mean ±SD	N	%	Mean ±SD
Gender	62	100		48	77		14	23	
Age			71,15			71,95			68.57
29-40	1	1.61	±	1	2.08	±			±
41-59	9	14.52	11,33	7	14.58	11, 96	2	14.28	8.74
60-70	16	25.81		9	18.75		7	50.00	
71-80	21	33.87		19	39.58		2	14.28	
>80	14	22.58		11	22.92		3	21.42	
Missing	1	1.61		1	2.08				
Marital status									
Single	2	3.22		2	4.17		13	92.86	
Married	59	95.16		46	95.83				
Divorced									
Widows									
Missing	1	1.61					1	7.14	
Education									
No education	12	19.35		7	14.58		5	35.71	
Primary school	26	41.93		19	39.58		7	50.00	
secondary school	12	19.35		11	22.92		1	7.14	
High school	6	9.68		6	12.50				
Undergraduate									
Postgraduate									
Missing	6	9.68		5	10.42		1	7.14	
Health education									
Yes	3	4.84		3	6.25				
No	59	95.16		45	93.75		14	100	
Other chronic conditions									
Hypertension	23	37.10		15	31.25		8	57.14	
Diabetes	1	1.61					1	7.14	
Stroke	1	1.61		1	2.08				
Cardiovascular disease									
Others	5	8.06		5	10.42				
No other disease	24	38.71		22	45.83		2	14.28	
Several diseases	6	9.68		3	6.25		3	21.43	
Missing	2	3.23%		2	4.17%				

Note: N= Number of respondents, SD= Standard deviation.

6.4 Context

Cho Ray Hospital is the biggest hospital in Ho Chi Minh City and they have to accept people from all of the provinces. The respiratory department does not have room for all the patients and their relatives who always have to stay with the patient. This causes that patients have to share beds and patients have to lie in the corridors. There are a lot of people in Vietnam that cannot read or write which led to that the co-supervisor had to interview the patients. These contexts do not cause an optimal ethical environment.

6.5 Data Collection Method

Huynh Thi Phuong Hong, Lecture at the Department of Nursing, University of Medicine and Pharmacy in Ho Chi Minh City together with Dr. Pranee Lundberg, Associate Professor at the Department of Public Health and Caring Sciences, Uppsala University, have developed a questionnaire to investigate prevalence of HRQL among COPD patients in Ho Chi Minh City.

The study was a pilot study for a bigger study that Huynh Thi Phuong Hong is going to perform later this year. The questionnaire was based on SF-36 which is the most widely used questionnaire in research of HRQL among COPD patients (Paddison, Cafarella & Frith, 2012). SF-36 has been used for many years and has been developed and tested for validity and reliability many times (Sullivan, Karlsson & Ware, 1995). Validity for SF-36 is high regarding changes of HRQL in relation to differences in clinical status (Swigris et al., 2009). Compared to other instruments such as the St. George's Respiratory Questionnaire (SGRQ), Guyatt's Chronic Respiratory Questionnaire (CRQ) and Euroqol (EQ), SF-36 has as high reliability as the other tests when investigating outcomes for COPD patients. SF-36 has a high validity and reliability and is a comprehensive outcome measure for people with COPD (Harper et al., 1997). SF-36 has been translated, tested and used to measure HRQL in Vietnamese before. The validity and reliability for the Vietnamese version of SF-36 has been tested high, except for reliability of the scales mental health, vitality and pain (Watkins, Plant, Sang, O'rourke & Gushulak, 2000).

The total questionnaire consists of 95 questions which are divided into three parts. In this study only the first and the second parts were used. The first part consists of 17 questions regarding personal background information. In this study seven of the 17 questions will be presented. The second part consists of 36 questions which come from SF-36. From these questions 35 of them are divided into eight different categories. The eight categories of SF-36

are general health, physical functioning, role limitation- physical, bodily pain, vitality, social functioning, role limitation- emotional and mental health (Ware et al., 1995).

For the first part of the questionnaire the questions were answered by selecting different alternatives, from two alternatives up to six alternatives. In some questions more than one alternative could be selected. Some questions in the first part were answered by free writing. Questions in the second section were answered by selecting alternatives. The questions had different amount of alternatives, from two alternatives up to six alternatives. Only one alternative could be selected for every question. All of the questions were coded, summed and translated to a numbered scale from 0 to 100 where 0 represent the worst possible score of HRQL and 100 represent the highest possible score of HRQL.

6.6 Procedure

The project was a collaboration between the Department of Public Health and Caring Sciences, Uppsala University, Sweden and the University of Medicine and Pharmacy in Ho Chi Minh City, Vietnam, by Linneaus-Palme Exchange Program.

Huynh Thi Phuong Hong, co-supervisor, contacted the director of Cho Ray Hospital for permission to carry out the study. Huynh Thi Phuong Hong, co-supervisor, asked some other nursing teachers to help with the data collection. The teachers who accepted to help were informed about the study and how to collect data. After permission from the ethical committee at the university and the director of the hospital, the co-supervisor informed the head nurse at the respiratory department at Cho Ray Hospital about the study and got a permission to select data of all patients with COPD. Every day of the time for data collection the co-supervisor were going through all of the journals to find and invite all patients with COPD who matched with the inclusion criteria's. The patients that participated or declined to participate were documented on a list to keep a record on which patients that already had been invited to the study. Patients that were admitted the same day were not asked to participate until the day after. The goal was to achieve constancy of conditions for the patients while answering the questionnaire. If the patients were very ill and exhausted the same day that they admitted for participate it could have been influencing their answers (Polit & Beck, 2010). The patients were asked to participate voluntarily. Before filling in the questionnaire the participants were informed both orally and written, by the co-supervisor together with nurses at the patient ward about the study and their rights. The patient also had to sign the consent

letter. Some patients gave authorization to let their family member sign the consent letter. The patients could not fill in the questionnaires by themselves because of their ill condition or trouble with reading or writing. Therefore, the patients were interviewed by the co-supervisor or another nursing teacher. After finishing the questionnaire the patients gave it back to the co-supervisor and the authors. Each patient has received soap for their participation in the study. Each questionnaire took about 15 minutes to answer. The questionnaires were coded and kept in a box in a room for the data analysis. After that they were handed over to Huynh Thi Phuong Hong, co-supervisor.

6.7 Data analysis

The data was analyzed by using the statistic program, The Statistical Package of Social Science (SPSS).

For the first part in the questionnaire which consists of questions about demographic information, the answers are at a nominal and quota scale. We registered the numbers in SPSS program using descriptive statistic. The included answers that are presented in the study are the ones with answers that felt considerable for the aim.

The second part in the questionnaire consisted questions about mental and physical health. The answers are at an ordinal scale level and scored into numbers at a quota scale. To score the answers we used a manual for SF-36, see appendix.

To analyze question 1. “How do COPD affect health related quality of life among patients in Ho Chi Minh City, Vietnam?”, we analyzed all the answers in section two according to the SF-36 manual. We turned the answers into numbers and gave them scores between 0-100 after the SF-36 manual. After scoring the answers we added all of the scores and divided by 36 to get a mean value. We answered the research by descriptive data. We also added the scores of the answers from the questions in each scale and then divided that score by amount of questions to get a mean value for each scales to present HRQL in different aspects. This is presented with descriptive data. Three respondents did not answer one question each of part two. The answers were then divided by 35 instead of 36. The HRQL scores for each scale were also corrected after the missing answer. The results are presented with the other results.

In table 2 the eight different scales of SF-36, the numbers and amount of the questions for each scale are presented.

Table 2. Different scales of HRQL.

SCALE	NUMBER OF ITEMS	QUESTION NUMBERS
Physical functioning	10	3a,3b,3c,3d,3e,3f,3g,3h,3i,3j
Role limitations due to physical health	4	41, 4b, 4c, 4d
Role limitations due to emotional problems	3	5a, 5b, 5c
Vitality	4	9a, 9e, 9g, 9i
Mental health	5	9b, 9c, 9d, 9f, 9h
Social functioning	2	6, 10
Bodily Pain	2	7, 8
General health	5	1, 11a, 11b, 11c, 11d

To analyze the answers of question 2: “Is there any difference in HRQL among men and women diagnosed with COPD in Ho Chi Minh City, Vietnam?” the HRQL scores from question 1 were typed into SPSS. Then the answers about gender were turned into numbers to be able to type the genders in to SPSS for comparing. The nonparametric Mann- Whitney U test was used to compare if there were any difference in HRQL among the men and women that answered the questionnaire. Mann- Whitney U test was used because of the relatively small sample and the data were skewed so a parametric test could not be used (Polit & Beck, 2010). The significant difference between the genders has a determined p-value ≤ 0.05 . The results are presented in tables and text.

7. ETHICAL CONSIDERATIONS

The co-supervisor, Huynh Thi Phuong Hong, has submitted ethical application form about this study to the ethical committee at the University of Medicine and Pharmacy in Ho Chi Minh City for approval. The study has been approved.

To be sure that the participants were treated with ethical rights the authors read and used the International Council of Nurses (ICN) code of ethics for nurses. Every participant was informed about the study in Vietnamese by the co-supervisor or nurses to be certain they had understood their rights. The participation in the study was voluntary and it was allowed to withdraw from the study anytime without consequences. The data were deleted when finishing the study. All data from the study were handled confidential. The respondents should have been able to answer the questionnaires in privacy without other patients that could disturb or influence. Due to lack of space and difficulty to move patients, the privacy while answering was not optimal. We realized that some question could be perceived as sensitive for the participants (CODEX, 2013).

8. RESULTS

8.1 Levels of HRQL among COPD patients

The results of the levels of HRQL among patients with COPD in Ho Chi Minh City are presented in table 3.

The mean value for total HRQL in the whole study group was 22.42. The highest mean values of HRQL were in the scales pain (45.72) and mental health (38.00). The lowest mean values of HRQL were in the scales role limitation physical (4.84) and role limitation emotional (11.82). These two scales had a median value of 0.00 and a range between 0-100.

The minimum scores for HRQL were between 0.00-5.00. Seven scales had a minimum score for HRQL at 0.00. Only mental health and the total score of HRQL had a minimum value over 0.00.

The maximum scores for HRQL were between 70.00-100.00 with five of the scales with a maximum of 100.00. The lowest maximum score at 70.00 was in the scale general health.

Table 3. Levels of HRQL among COPD patients (SF-36 scores).

Scales	N	M	SD	Md	Min	Max
Total HRQL	62	22.42	17.25	17.84	2.22	74.02
General Health	62	24.39	17.03	20.00	0.00	70.00
Pain	62	45.72	37.04	45.00	0.00	100
Social functioning	62	29.51	25.98	25.00	0.00	100
Mental health	62	38.00	18.87	32.00	5.00	92.00
Vitality	62	23.39	23.30	20.00	0.00	100
Role limitation emotional	62	11.82	31.99	0.00	0.00	100
Role limitation physical	62	4.84	20.16	0.00	0.00	100
Physical functioning	62	17.82	20.15	17.50	0.00	85.00

Note: N= Number of respondents, M= Mean, SD= Standard deviation, Md= Median, Scale 0-100, 0 =worst possible health, 100 = best possible health

8.2 Differences in HRQL scores between male and female patients with COPD

The results of levels of HRQL between male and female patients with COPD are presented in table 4.

Women in this study reported a lower HRQL than the respondent men. There were several significant differences in HRQL between male and female patients with COPD. Women reported a total HRQL score of 15.05 and men reported a total score of 24.57. Women had a significant lower HRQL in total HRQL (p-value= 0.04), general health (p-value= 0.02) and pain (p-value= 0.05). Mean value in the scale general health was 14.79 for women and 27.19 for men. Mean value in the scale pain was 28.03 for women and 50.88 for men.

There were no significant differences between genders for the other scales of HRQL. The respondent men had a higher mean value and maximum score for all of the scales and the total

HRQL score than the respondent women had. The respondent men had higher or as high median score for all of the scales and the total HRQL score than the respondent women had.

Table 4. Differences in HRQL between male and female patients with COPD measured by SF-36.

Scales	Men (N=48)					Women (N= 14)					Z-value	P-value
	MR	M	SD	Md	Range	MR	M	SD	Md	Range		
Total HRQL	34.04	24.57	18.05	20.48	4,16-74.02	22.79	15.05	11.93	15.97	2.22-45.14	-2.05	0.04*
General Health	34.31	27.19	17.41	22.50	0-70	21.86	14.79	11.69	13.50	0-30	-2.28	0.02*
Pain	33.85	50.88	38.25	45.00	0-100	23.43	28.03	26.43	22.50	0-90	-1.93	0.05*
Social functioning	32.48	31.09	26.75	25.00	0-100	28.14	24.10	23.23	25.00	0-75	-0.80	0.42
Emotional well being	33.66	40.25	19.60	36.00	5-92	24.11	30.29	14.09	30.00	8-60	-1.74	0.08
Energy/fatigue	32.31	25.31	24.99	20.00	0-100	28.71	16.79	15.14	20.00	0-40	-0.66	0.50
Role limitation emotional	32.67	15.27	35.70	0.00	0-100	27.50	0.00	0.00	0.00	0-0	-1.62	0.10
Role limitation physical	32.08	6.25	22.77	0.00	0-100	29.50	0.00	0.00	0.00	0-0	-1.10	0.26
Physical functioning	33.15	19.06	20.09	20.00	0-85	25.86	13.57	20.51	5.00	0-75	-1.37	0.16

Note: *p-value \leq 0.05 = significant difference, N= Number of respondents, MR= Mean rank, M= Mean, Md= Median, SD= Standard deviation, R= Range
Scale 0-100, 0 =worst possible health, 100 = best possible health

9. DISCUSSION

The result of this study showed a low HRQL for COPD patients with a mean value of 22.42 in the total group of respondents. Women showed a significant lower HRQL than men regarding total HRQL and for the scales general health and pain. The mean value for HRQL of the respondent men was 24.57 and the mean value of HRQL for women was 15.05.

9.1 Results discussion

9.1.1 HRQL scores among patients with COPD

The results show that the mean score of HRQL was 22.42 with the highest HRQL level in the scale pain (45.72). These result agrees with the result of Boueri (2001) where pain also was the scale that got the highest level of HRQL (78). The result from this study does not agree with the results of the study by Boueri (2001) regarding HRQL levels in the scale role limitation emotional. Boueri (2001) found that the role limitation emotional had one of the highest levels of HRQL (67). In this study role limitation emotional was one of the scales with lowest levels (11.82).

The reported HRQL levels from this study showed lower results compared with other studies of HRQL among COPD patients. Compared with the study of Boueri (2001) these results showed lower levels of HRQL in all of the scales. The result of this study also showed a lower HRQL in all of the scales than the results from the study by Santánna (2003) that investigated HRQL among COPD patients in Brazil. The other studies were not performed in Vietnam which leads to that cultural and structural differences could be an explanation why the results are different.

The study by Boueri (2001) also showed that patients, who participated in a pulmonary rehabilitation program for three weeks, had a significant improvement in HRQL measured by SF-36. The program included medical management, education, exercise training, and psychosocial counseling. These results also agrees with a study by Kunik et al. (2008) which showed a significant improvement in HRQL for COPD patients after receiving education and advices about their disease. Only three of the participants in this study had received any health education or information about COPD. Hakkak et al. (2014) found that it is important to inform the patient about the disease and the development in an early stage of COPD. This can prevent that patient loses interest or does not want to discuss and talk about his/her disease and end of life concerns in a later stage of the disease when they seem to need the information. The patients in this study would need some more information and health education. The lack of education could be one explanation why participants in this study showed a lower result of HRQL than in other studies.

At the patient ward where this study was conducted there were many patients and one nurse had to take care of about 15-20 patients. Barnett (2008) found that nurses have to use a

positive approach while treating and that nurses need a good knowledge about the disease to be able to improve HRQL for their patients. The environment and resources at the department could have been preventing the nurses to help their patients improve HRQL because of stress and lack of time to talk and support their patients. That could also have been an explanation why the result from this study was lower than in other studies.

9.1.2 Differences in HRQL between male and female patients with COPD

Female COPD patients in this study reported a lower score of HRQL than male patients. Women showed significant lower HRQL for total HRQL, the general health scale and the pain scale. This result agree with the study by Kamil, Pinzon and Foreman (2013) which presented results that female COPD patients showed a lower HRQL than male COPD patients. The reason why female COPD patients showed lower HRQL than male COPD patients could be because female sex, hormones and genetics can change sensitivity, symptoms, and comorbidities of COPD. A study made by Lou et al. (2012) in China also agreed with the results in this study that HRQL were lower for women with COPD than men. The study also showed that knowledge about causes and treatment of the disease is different between men and women. This could be an explanation why men and women report different levels of HRQL.

Women in this study showed significant lower HRQL for pain than men. A study by Katsura, Yamada, Wakabayashi and Kida (2007) agree with this result. They found a significant lower HRQL for women regarding six of the eight scales. They did not found any significant differences for the scales social functioning or general health. In this study women showed a significant lower HRQL for general health which does not agree with the result by Katsura et al. (2003). A study by Tödt et al. (2014) did not found any significant differences in fatigue and physical capacity between men and women diagnosed with COPD. These results agree with results from this study. Martinez et al. (2012) did not found any significant difference between the genders in self-rated health or limitations. In this result no significant difference between the genders were found for limitations. Results from this study showed significant differences between the genders for total HRQL and general health when the patients were self-rating their HRQL.

9.2 Method discussion

There are little data about COPD and HRQL in Asia and therefore the phenomenon was investigated. This study aimed to describe HRQL among COPD patients in Vietnam. Therefore a quantitative and descriptive design was used. A quantitative method provides a lot of data and it is time effective (Eliasson, 2006). A cross-sectional design was used because the aim was to investigate and describe the status of HRQL score among COPD patients at one point. A consecutive sample was used for the reason of a small amount of time for data collection and to get as many respondents as possible. With a consecutive sample for a short time like in this study there is a risk of seasonal or other time-related fluctuation which can affect the results. Even if risk of bias is reduced when asking all patients who match with the inclusion criteria over a fixed time. Before interventions can be justified nonexperimental studies like this study is often necessary (Polit & Beck, 2010).

The aim of this study was to describe HRQL among COPD patients by a descriptive design. SF-36 is the most widely used questionnaire in research of HRQL among COPD patients (Paddison, Cafarella & Frith, 2012). A study by Nilsson, Wenemark, Bendtsen & Kristenson (2007) showed that 68 percent of the respondent patients with COPD expressed that SF-36 gave the ability of describing their health in a good way. They also found that health outcome instruments like SF-36 was accepted and appreciated among patients.

SF-36 is a well used instrument with a high validity and reliability (Sullivan, Karlsson & Ware, 1995). SF-36 has as high validity and reliability as other instruments measuring HRQL (Harper et al., 1997). Measuring HRQL by SF-36 has shown that HRQL changes in relation to differences in clinical status (Swigris et al., 2009). That is a sign that the instrument has a strong internal validity for measuring HRQL in relation to COPD. The questionnaire has been tested in Vietnamese before with a strong validity of the instrument. The reliability was low for the scales mental health, vitality and pain, which must be considered as a limitation of this study. For the other scales the reliability of SF-36 was high in the Vietnamese version (Watkins, Plant, Sang, O'rourke & Gushulak, 2000).

The reliability could have been affected by that the respondents could not fill in the questionnaires by themselves and therefore could have been affected by the co-supervisor who read the questions and filled in the answers for the patients. The co-supervisor could have been interpreting the questions and answers different from what the patients did. The

questions could have been considered as sensitive and difficult to respond vocal and truthful. As explained in the context part, there was no space for privacy while filling in the questionnaires. That could also have affected the results because the patients had relatives and other patients around them while answering the questions. At this department there was no possibility of creating a private conversation with the patients.

Three respondents did not answer one question each of part two. The missing answers could have changed the result with some decimals so the authors considered the risk for changing the total results significant as low and therefore they are presented with the other results.

Limitations of this study could be that it is not possible to generalize the results from this study to patients with COPD that lives in other area and are treated at all other hospitals. The study has a low external validity because of a small sample, especially a small sample of women. Also that health care practice patterns may differ regionally and from different hospitals. Cho Ray hospital is a public hospital and there are also private hospitals in Ho Chi Minh City with other standards and routines. It is also more expensive at the private hospitals which could affect the demographic information of the patients. A study by Thumboo et al. (2003) has shown that socio-economic situation and ethnics significantly can change the results of HRQL measured by SF-36 in a multi-ethnic Asian population.

9.3 Theoretical framework discussion

Benner and Wrubel mean that nurses should help their patient to live with the disease and lost functions and to help them focus on well-being instead of the disease (Jahren Kristoffersen, 2006). The results from this study showed that men and women had a low HRQL and a lot of limitations because of their disease. In the questionnaire there was a question about if the patient had received any health education about COPD, which only three of the 62 participated had (4.84%).

Patients that receive education about their disease have shown to improve their HRQL significantly (Boueri, 2001). When patients get information and health advices about COPD they can figure out and understand how to live with the disease which is important according to Benner and Wrubel (Jahren Kristoffersen, 2006). With help from the theoretical framework we can draw conclusions that nurses need to focus more on giving health education and support COPD patients to help them improve HRQL.

9.4 Clinical implication

The result of this study can be used to improve the hospital care for COPD patients. Patients in this study have a low HRQL. The results indicate that COPD patients in Ho Chi Minh City have a lower HRQL than in other parts of the world. Patients with COPD have expressed a need for support and help (Asplund & Sjöström, 2008). Education about the disease and how to live with it has shown to improve HRQL significantly (Boueri, 2001). In this study almost none of the patients have received any health education. Therefore these results can be used to get healthcare providers to focus more on giving information and support to COPD patients about the disease. By that the authors hope that these results can influence health care providers to help their patients to increase HRQL. Women with COPD show lower HRQL than the men, meaning that women may need even more support and information during their hospital care and during their life with the disease concerning self-management. Knowledge of the differences between the genders may be considered when designing treatment strategies for COPD patients. The results from this study can also be used as a guideline for respiratory departments to be able to develop their care for COPD patients with aim to improve their HRQL.

The authors found it to be a problem that FEV₁ and FVC values were not documented in the journals. The healthcare providers may document the FEV₁-value in the patient journals as well to follow up how the disease is developing. It could help the staff to have more control of the patient and give the patient a more individualized and safe care.

9.5 Further research study

More studies like this need to be done to investigate the problem further. It is important to investigate why HRQL levels are lower in this study than HRQL levels in other studies, to be able to find a way to improve HRQL for the patients.

There was no question in this questionnaire about smoking status which leads to no data about reason of getting COPD. The authors found that to be an interesting question and asked the co-supervisor to add that as an extra question. It seems that most of the women in this study had not been smoking. There are studies that show that there are differences in men and women regarding reason and risks of getting COPD (Lou et al., 2012), (Kamil, Pinzon &

Foreman, 2013). Therefore it would have been interesting to investigate differences between the genders regarding reason and risks of getting COPD.

In the future studies the sample should be larger and last over a longer time to have an opportunity to draw further conclusions about the result. To be able to draw conclusion about HRQL in Ho Chi Minh City is would also be important to collect data at different hospitals with different care and routines. It would also have been interesting to investigate HRQL among healthy population in Ho Chi Minh City to be able to draw conclusion about HRQL in Vietnam compared to other countries.

10. CONCLUSION

Results of this study showed that COPD patients in Ho Chi Minh City, Vietnam had a low HRQL. The results are lower compared to other studies made. Women in this study showed a lower HRQL then the respondent men. Results from this study indicate that patients with COPD need better support and health education from health care providers. The results also indicate that health care providers need to be more observant to that problems or need of support can be different for the genders.

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13. APPENDIX

11.1 Questionnaire

Health-related quality of life, depression, anxiety and stress among patients with chronic obstructive pulmonary diseases

The aim of this study is to examine health-related quality of life, depression, anxiety and stress among patients with chronic obstructive pulmonary diseases (COPD) in Ho Chi Minh City, Vietnam. Your participation is voluntary to answer the following questionnaire. Your answer will be confidential. The result will be used to develop an intervention programme for health education to the patients.

SECTION I

This section asks for your personal information. Please answer every question by selecting the answer as indicated or filling the blank.

1. Gender

Male Female

2. Age years old

3. Marital status

Single Married Divorced
 Widowed Others, please specify

4. Educational level

No education Primary school Secondary school
 High school Undergraduate Postgraduate

5. Occupation

6. Living place

7. Respiratory functional parameter (FEV1/FVC)

8. Other chronic conditions (please mark according to your conditions)

Hypertension Diabetes Stroke
 Cardiovascular diseases Others, please specify

9. Weight (kg)
10. Height(cm)
11. During the past 1 year, how many times did you admit to the hospital due to exacerbation of COPD?
12. When was your last time of admitting to the hospital due to exacerbation of COPD?
.....
13. Have you ever joined any COPD club?
 No Yes, if “yes” how long have you joined the club?
14. Have you ever received any health education related to COPD in the past 1 year?
 No Yes

If “Yes” please answer the following questions.

Where did you receive this health education?

- Hospital Health care centre
 COPD club Others, please specify

Who provided this health education?

- Physician Nurse Others, pelase specify

Are you satisfied with the health education you have received?

- No Yes

SECTION II

This section asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities

Answer every question by selecting the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

- Excellent Very good Good
 Fair Poor

2. Compared to one year ago, how would you rate your health in general now?

- Much better now than one year ago
 Somewhat better now than one year ago

- About the same as one year ago
- Somewhat worse now than one year ago
- Much worse now than one year ago

3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Lifting or carrying groceries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Climbing several flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Climbing <u>one</u> flight of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. bending, kneeling, or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Walking <u>more than a mile</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Walking <u>several blocks</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Walking <u>one block</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Bathing or dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

- a. Cut down on the amount of time you spent on work or other activities Yes No
- b. Accomplished less than you would like Yes No
- c. Were limited in the kind of work or other activities? Yes No
- d. Had difficulty performing the work or other activities Yes No

(for example, it took extra effort)

5. During the past 4 weeks, have you any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

- a. Cut down on the amount of time you spent on work or other activities Yes No
- b. Accomplished less than you would like Yes No
- c. Did work or other activities less carefully than usual Yes No

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- Not at all Slightly Moderately
 Quite a bit Extremely

7. How much bodily pain have you during the past 4 weeks?

- None Very mild Mild
 Moderate Severe Very severe

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

- Not at all Slightly Moderately
 Quite a bit Extremely

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past 4 weeks ...

- | | All of
the time | Most of
the time | A good
bit of the
time | Some
of the
time | A little
of the
time | None
of the
time |
|-----------------------------------|--------------------------|--------------------------|------------------------------|--------------------------|----------------------------|--------------------------|
| a. Did you feel full of pep? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Have you been a very nervous ? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

person?

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
c. Have you felt so down in the dump that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Have you felt calm and peaceful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Did you have a lot of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Have you felt downhearted and blue?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Did you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Have you been a happy person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Did you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

- All of the time
 Most of the time
 Some of the time
 A little of the time
 None of the time

11. How TRUE or FALSE is each of the following statements for you?

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a. I seem to get sick a little easier than other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I am as healthy as anybody I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I expect my health to get worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My health is excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION III

This section asks for your views about your depression, anxiety and stress. Please read each statement and circle the number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers.

<i>The rating scale is as follows:</i>				
0 Did not apply to me at all				
1 Applied to me to some degree, or some of the time				
2 Applied to me to a considerable degree, or a good part of time				
3 Applied to me very much, or most of the time				
I found myself getting upset by quite trivial things	0	1	2	3
I was aware of dryness of my mouth	0	1	2	3
I couldn't seem to experience any positive feeling at all	0	1	2	3
I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
I just couldn't seem to get going	0	1	2	3
I tended to over-react to situations	0	1	2	3
I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
I found it difficult to relax	0	1	2	3
I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
I felt that I had nothing to look forward to	0	1	2	3
I found myself getting upset rather easily	0	1	2	3
I felt that I was using a lot of nervous energy	0	1	2	3
I felt sad and depressed	0	1	2	3
I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0	1	2	3
I had a feeling of faintness	0	1	2	3
I felt that I had lost interest in just about everything	0	1	2	3
I felt I wasn't worth much as a person	0	1	2	3
I felt that I was rather touchy	0	1	2	3
I perspired noticeably (eg, hands sweaty) in the absence of high	0	1	2	3

temperatures or physical exertion				
I felt scared without any good reason	0	1	2	3
I felt that life wasn't worthwhile	0	1	2	3
I found it hard to wind down	0	1	2	3
I had difficulty in swallowing	0	1	2	3
I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
I felt down-hearted and blue	0	1	2	3
I found that I was very irritable	0	1	2	3
I felt I was close to panic	0	1	2	3
I found it hard to calm down after something upset me	0	1	2	3
I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
I was unable to become enthusiastic about anything	0	1	2	3
I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
I was in a state of nervous tension	0	1	2	3
I felt I was pretty worthless	0	1	2	3
I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
I felt terrified	0	1	2	3
I could see nothing in the future to be hopeful about	0	1	2	3
I felt that life was meaningless	0	1	2	3
I found myself getting agitated	0	1	2	3
I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
I experienced trembling (eg, in the hands)	0	1	2	3
I found it difficult to work up the initiative to do things	0	1	2	3

Thank you for your answer

11.2 SF-36 scoring manual

How to Score the Rand SF-36 Questionnaire

STEP 1: SCORING QUESTIONS

Question number	Original response	Recorded value
1, 2, 20, 22, 34, 36	1	100
	2	75
	3	50
	4	25
	5	0

3, 4, 5, 6, 7, 8, 9, 10, 11, 12	1	0
	2	50
	3	100

13, 14, 15, 16, 17, 18, 19	1	0
	2	100

21, 23, 26, 27, 30	1	100
	2	80
	3	60
	4	40
	5	20
	6	0

24, 25, 28, 29, 31	1	0
	2	20
	3	40
	4	60
	5	80
	6	100

32, 33, 35	1	0
	2	25
	3	50
	4	75
	5	100

STEP 2: AVERAGING ITEMS TO FORM 8 SCALES:

SCALE	NUMBER OF ITEMS	QUESTION NUMBERS
Physical functioning	10	3, 4, 5, 6, 7, 8, 9, 10, 11,12
Role limitations due to physical health	4	13, 14, 15, 16
Role limitations due to emotional problems	3	17, 18, 19
Vitality	4	23, 27, 29, 31
Mental health	5	24, 25, 26, 28, 30
Social functioning	2	20, 32
Bodily Pain	2	21, 22
General health	5	1, 33, 34, 35, 36

STEP 3: FIGURING SCORES:

RAND recommends the following straightforward approach to scoring the RAND 36-Item Health Survey.

All questions are scored on a scale from 0 to 100, with 100 representing the highest level of functioning possible. Aggregate scores are compiled as a percentage of the total points possible, using the RAND scoring table (STEP I chart). The scores from those questions that address each specific area of functional health status (STEP II chart) are then averaged together, for a final score within each of the 8 dimensions measured. (eg pain, physical functioning etc.) For example, to measure the patients energy/fatigue level, add the scores from questions 23, 27, 29, and 31. If a patient circled 4 on 23, 3 on 27, 3 on 29 and left 31 blank, use table 1 to score them. An answer of 4 to Q23 is scored as 40, 3 to Q27 is scored as 60, and 3 to Q29 is scored as 40. Q31 is omitted. The score for this block is 40+60+40 =140. Now we divide by the 3 answered questions to get a total of 46.7. Since a score of 100

represents high energy with no fatigue, the lower score of 46.7% suggests the patient is experiencing a loss of energy and is experiencing some fatigue. All 8 categories are scored in the same way. Using this questionnaire at the beginning and during the course of care, we can track the progress of the 8 parameters mentioned in the STEP II chart.