



CHAPTER IV

DISCUSSION AND CONCLUSION

4.1 Discussion

This study investigated the effects of a structured, pulmonary rehabilitation training program on a person's ability to adjust to living with Chronic Obstructive Pulmonary Disease (COPD) related disability and developed rehabilitative behavior against the slow progression of the COPD process. The program took place at Chiangmuan Hospital, Chiangmuan District, Phayao province, during November 2000 to September 2001. The total of 13 COPD patients participated in the rehabilitation program at the hospital, then carried over to home and supervised by the home visit nurse, combined with monthly hospital follow-up care. The project evaluation used one group pre – post test design. The discussion of the results is as follows:

Recognizing that chronic obstructive pulmonary disease (COPD) is a major health problem, a multi-professional rehabilitation team was formed and the available evidence- guidelines and recommendations for practice of the pulmonary rehabilitation program were developed. The process of program development used the participatory involvement from all team members. They shared the body of knowledge, experienced and skill practiced among the team. The successful of the development program came from the dedicated efforts from everyone of the rehabilitation team.

educational sessions took place in small focus groups, provided information based on current needs of the patients, explained COPD in terms the patients could understand, stressed the fact that strict adherence to the rehabilitation program was necessary, in order, to delay and/or prevent further complications. Moreover, there were interactive activities throughout the sessions involving every member of rehabilitation team and the subjects, questions were encouraged, and clarification of misconceptions the patients had about COPD were given. The pulmonary rehabilitation program allowed patients access to educational material about the disease and went through a learning exercise together. It provided an opportunity for COPD patients with similar problems to participate in group discussions and share their experiences. Overall, the patients reported an increase in a wide variety of knowledge and skills relevant to minimizing complications and disability from the disease.

In addition, the majority of the study groups were elderly people with an education background at the primary school level and some could not read but there were no difficulty for the patients in learning. The instructions emphasized providing information in terms that the patients could easily understand, encouraged questions to be asked and discussions to take place. The informal interaction with the staff stimulated a constructive atmosphere that promoted the learning process of the study group. The six-weeks intervention course allowed adequate time for the COPD patients to achieve a physiological training effect and sustained improvement. The education in the program helped the patients take more responsibility for their self-care and to cope with changes that have taken place in their physical and functional status.

In addition, the formal hospital-based rehabilitation program was followed by the home-based rehabilitation to encourage the patients to continue exercise at home. The rehabilitation nurses conducted the home-based rehabilitation during their routine home visit; they supervised and trained the patients in their homes. Most of the COPD patients felt that rehabilitation helped in their recovery and, therefore, played an active role in the rehabilitation process. They reported increased control over many COPD problems, improved their ability to recognize and treat symptoms of their disease, and practiced exercised regularly at home. The results indicated that the continuous process of the pulmonary rehabilitation program with follow-up at home was effective resulted in a change and help the COPD patients to manage their conditions effectively. Moreover, the patients gained a sense of self and that led to a successful self-care at home.

The hospital records showed that patients demonstrated an effective compliance to the therapeutic regimen in treatments and care after participation in the rehabilitation program. They were, in essence, able to show an understanding of the implications of not following the prescribed treatment plan, understanding the use of the prescribed medications including the rationale, their side effects, the methods of administering, and the importance of following the instructions given. The result indicated that educational component of pulmonary rehabilitation program was effective in improve medication habits and encourage the COPD patients active participation in the treatment and care.

4.2 Post Intervention

The results of the present study showed a significant improvement in the subjects' quality of life, the exercise capacity and the perception of dyspnea after exercise after they had attended the rehabilitation program and remained significant/v improved 6 months after the program ended. It may be explained that the rehabilitation program could improve the patients' knowledge, better understanding of the disease, and help patients explore ways to cope with COPD disease. After the pulmonary rehabilitation program the COPD patients became more skilled at collaborative self-management. The exercise training may minimize patients' fear of dyspnea sensation and increase participants' confidence in their ability to manage or avoid breathing difficulty while engaging in routine activities. This finding supports the study of Reardon et al., 1994 who studied the effect of a comprehensive pulmonary rehabilitation program on dyspnea in 30 persons with COPD. They found that patients reported greater decreases in dyspnea than could be explained by improved exercise efficiency. Similarly, Belman et al., 1991 found that when patients with COPD exercised for just 10 days, they reported decreased dyspnea even though minute ventilation and oxygen consumption did not change. They concluded that the patients' perception of dyspnea decreased because they became desensitized to the symptom or the exercise milieu.

In this study, the improvements in exercise performance and decreased in dyspnea occurred quite quickly, and the improvement in the quality of life lag behind as patients adjust to the life style changed. The results of this study support the two studies that evaluated the overall quality of life in patients with symptomatic COPD

using a randomized design and compare the results with those of control subjects. Two of these studies, one by Guell et al., 1995 and the one by Goldstein, 1994 comprising close to 140 patients in total, using disease-specific questionnaires. They showed that pulmonary rehabilitation significantly improves the reported quality of life

It can be concluded that the pulmonary rehabilitation in this study was effectiveness in improving the quality of life, increase the exercise capacity and decrease the perception of dyspnea after exercise of the patients with COPD who participate in the program.

Age influenced subjects' response to the intervention. Subjects in the older age group demonstrated significant improvement on the CRQ, the exercise capacity and the perception of dyspnea after exercise after participation in the rehabilitation program, whereas the younger age group appeared to be limited in their ability to enhance the three outcomes. The finding of improvements in quality of life, the exercise capacity and the perception of dyspnea in the older group are new and novel. The results in this study are consistent with previous research with healthy older adults which demonstrated that exercise training resulted in improvements in exercise capacity and health-related quality of life.

Moreover, this study is in agreement with Prigatona, 1984 that examined younger COPD patients and found that quality of life in elderly COPD patients is dependent upon a complex interaction of psychological well-being, social and physical factors. The explanations for these effects may be, first, the elderly patients with COPD have frequent co-morbid conditions. These patients may be particularly

vulnerable to their physical function more than the younger age group do and thus derive more benefit from involvement in the pulmonary rehabilitation program. Second, it is the fact that subjects in the older age group adhered to the exercise practice and increased their ability to adjust to living with COPD related disability more than the younger age group. Third, the older age group may benefit more from a rehabilitation program that includes emotional support from staff members and social interaction along with traditional exercise training.

The different stages of the disease also influenced subjects' response to the intervention. In this present study, the COPD patients with mild airway obstruction reported significant gains in the quality of life, the 12- minute distance walk test and the perception of dyspnea after exercise, after the pulmonary rehabilitation program, whereas, the participants with both moderate and severe disease did not. The mild group made significant gains in the dyspnea, fatigue and mastery subscale of the CRQ, improvement in the 12-minute distance test and the perception of dyspnea after the rehabilitation program, whereas, the moderate and severe disease did not.

The results of this study are unique and not consistent with other findings. Maltais, 1997 and colleagues have shown that pulmonary rehabilitation, which includes exercise training, resulted in improvements in physical performance and health related quality of life primarily in patients with moderate or severe disease but not mild disease. Whereas, Berry, 1999 has shown that all patients with COPD, despite the severity of the disease, benefits from participation in an exercise training program. And

the exercise therapy with COPD patients has no effect on general components of health-related quality of life. Therefore, differential outcomes of exercise training program based on the severity of the disease remains unresolved in the literature.

4.3 Conclusion

The conclusions of the study may be outlined as follows:

1. The pulmonary rehabilitation program in this study was effective in increasing patients' knowledge of COPD and helped to develop the rehabilitation skills necessary to manage the COPD disease, resulting in positive physical and mental health outcomes.
2. The pulmonary rehabilitation program was effective in improving the quality of life, increasing the exercise ability and decreasing in the dyspnea of the participant who participated in the pulmonary rehabilitation program.
3. The important results in the findings of this study correlated well with the clinical change reported by the participants. The marked subjective benefits which were measured after participation in the project included general wellbeing, increased walking ability, reduced frequency of breathlessness, less cough and increased higher ability to perform activities of daily living and self care activities, and relieved depression. This pulmonary rehabilitation program was effective in reducing symptoms, decreasing disability, increasing participation in physical and social activities, and has affected an improvement in a person's ability to adjust to living with COPD-related disability.

4. All patients with COPD, despite the severity of the disease and independent of age, will benefit from participation in the rehabilitation program. However, patients in the older age and the mild airway obstruction appeared to respond to the rehabilitation program more effectively than those with the younger age group and the moderate, and severe airway obstruction.

4.4 Study Limitations

This study has several limitations due to the fact that the findings are still in the preliminary stages. These limitations are as follows:

1. The small sample size and the subjects' self-selection limit the study's generality. The subjects were not randomly selected; their participation was based on their personal interest and needs.
2. There was no control group. It can not be concluded that pulmonary rehabilitation program improved the quality of life, increased exercise capacity, and decreased the perception of dyspnea after exercise. The positive changes in the scores of the study group could have resulted from the subjects' experience of having psychological and social support by participating in this self-help association for chronic respiratory patients that was organized with the assistance of the rehabilitation team.
3. One limitation of this study was the effect of having unequal group sizes which may have some influence on the analyses done. Because the groups

with mild disease have a larger number of patients compared to the ones with moderate and severe groups, some errors might have been introduced

- 4 The reliability and validity of the test instruments need also be addressed. In addition, McGavin et al have demonstrated a learning effect with the 12MD and mentioned that practice sessions at the baseline are recommended before the real test were to be taken. The subjects in this study were not given the opportunity to practice the test, and increase in distance walked may be related in part to this omission of practice session on how to do the test rather than to the effect of the rehabilitation program alone. In addition, the CRQ instrument used to measure the quality of life in this study did not go through a standardized translation methodology or any localization methodology but immediately translated from the original investigators.