CHAPTER – VI

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

6.1 Summary

Asthma is a disease of diffuse airway inflammation caused by a variety of triggering stimuli resulting in partially or completely reversible bronchoconstriction. Asthma is a common long-term respiratory condition, and people can have episodes of exacerbations of symptoms which are also known as asthma attacks. (GINA, 2014).

Bronchial asthma is a condition which results in restriction of the physical, emotional and social aspects of a patient’s life. The most important goal in the management of bronchial asthma is the maintenance of a normal quality of life (QOL) for the patient.

Prabhakaran et al (2006) reported that well – structured asthma education with reinforcing by the health care professionals is the key to achieve effective self-care management of asthma.

Asthma patients should be made aware that a positive attitude towards treatment is a pre-requisite for good disease management. The lack of understanding about asthma may be crucial if the patient is not able to judge the severity of his/ her disease or symptoms or does not know the right treatment.
The primary focus of patient education and asthma management strategies should be to identify negative behaviours and work towards positive behavioral changes.

Yoga is a psycho-somatic-spiritual discipline for achieving union and harmony between our mind, body, and soul and the ultimate union of our individual consciousness with the universal consciousness, thereby helps to maintain the well-being of an individuals.

So there is a dire need to learn about the disease process and yoga techniques in order to reduce their symptoms, maximize the quality of life. Interventions including Integrated approach are considered the most effective in reducing asthma symptoms. Hence the researcher intended to determine the effectiveness of Integrated approach of educational tools and yoga in the overall outcome among patients with bronchial asthma attending outpatient services at a tertiary care hospital.

**Objectives**

The objectives of the study were to,

1. Determine the effect of Integrated Approach on knowledge, attitude and self-efficacy, asthma control, pulmonary functional measures and Quality of Life among patients with Bronchial asthma of both study and control group.

2. Correlate knowledge, attitude and self-efficacy, asthma control, pulmonary functional measures and Quality of life among patients with Bronchial asthma of both study and control group.
3. Associate the level of knowledge, attitude and self-efficacy, asthma control, pulmonary functional measures and quality of life with selected demographic variables of both study and control group.

To answer the research questions the hypotheses formulated were as follows:

1. There will be a significant difference in knowledge, attitude and self-efficacy among subjects who attend the integrated approach than those who do not.

2. There will be a significant difference in pulmonary functional measures and asthma control among subjects who attend the integrated approach than those who do not.

3. There will be a significant difference in quality of life among subjects who attend the integrated approach than those who do not.

Related literature were reviewed and Nola J. Pender’s Health promotion model (1996) was used for designing the conceptual framework.

The research design adopted was Randomized Controlled Trial. Manipulation included the Integrated approach refers to the interactive teaching learning-sessions that imparted knowledge on bronchial asthma using an information booklet along with practice sessions. Each session lasted for 15 minutes. Demonstration of yoga relaxation techniques for 30 minutes and 30 minutes practice every day at home setup. The patients in the control group received same intervention after completion of the study period.
The study was conducted in Chest and TB OPD, Sri Ramachandra Hospital. The samples were assigned randomly to study and control group using random number allocation technique and the population included patients with bronchial asthma.

Patients were screened for bronchial asthma and those and those who fulfilled the selection criteria during the period of study were selected as samples. Estimated sample size was 250 with 125 subjects in each of the groups. The instruments used had 6 parts:

Part I – Demographic and clinical variables
Part II - Standardized Knowledge, attitude and self-efficacy asthma Questionnaire constructed by John A. Winder
Part III - Standardized Asthma Control Questionnaire constructed by Elizabeth Juniper
Part IV - Pulmonary Functional Measures
Part V - Standardized Asthma Quality of life Questionnaire constructed by Elizabeth Juniper
Part VI - Yoga practice performance check list.
Part VI Compliance to Daily Symptom, peak flow meter and yoga performance dairy.

The instruments were validated by experts and reliability was checked using test – retest and interrater observation methods. The data were collected four times; during pretest, 30th day after pretest, 90th day and 180th day all the assessment were done.
A pilot study was conducted with 20% of the proposed sample size helped to assess the reliability and feasibility of the instruments. Modifications were done based on the pilot study results and experts recommendations.

**Findings of the study**

**Comparison**

**Knowledge**

There was a significant improvement in the knowledge score which is depicted by increased in mean score of 9.93 at pretest and 16.41 during Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 8.32 to 10.34 during Posttest III, which was not statistically significant.

**Attitude**

There was a significant improvement in the attitude score which is depicted by increased in mean score of 67.83 at pretest and 77.11 during Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 63.72 to 67.48 during Posttest III, which was not statistically significant.

**Self-efficacy**

There was a significant improvement in the Self-efficacy score which is depicted by increased in mean score of 56.31 at pretest and 68.82 during Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 55.43 to 58.30 during Posttest III, which was not statistically significant.
This detail conveys the information that there is an improvement in the knowledge, attitude and self-efficacy mean scores among the study group patients since the integrated approach had a great influence.

**Asthma control**

There was a significant improvement in the asthma control score which is depicted by increased in mean score of 38.43 at pretest and 21.67 during Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 39.82 to 30.52 during Posttest III, which was not statistically significant.

**Pulmonary Functional Measures**

With regard to the pulmonary functional measures, Forced vital capacity (FVC- Litre), Forced expiratory volume in the first second (FEV₁), Ratio of FEV₁/FVC and Peak expiratory flow rate (PEF) of both the study and control groups. It can be observed from the table that all data of control groups such as FVC, FEV₁, FVC/FEV₁, PEFR did not change (P<0.05). After six months of yoga training, Posttest III, in comparison with control group, all indicators of study group were significantly improved with the level of P<0.01 to 0.001 respectively. The study group showed a statistically significant increasing trend in FVC (Litre) over time: from baseline to at 6 months, while the control group subjects showed variable change in FVC (Litre) with an overall decrease which was statistically not significant.

**Quality of life**

There was a significant improvement in the quality of life score which is depicted by increased in mean score of 64.91 at pretest and 130.48 during Posttest
III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 62.32 to 78.82 during Posttest III, which was not statistically significant.

**Domains of Quality of life**

With regard to the symptom domain, there was an increase in mean score of 38.09 at pretest and 70.37 in the Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 36.09 to 42.17 during Posttest III, which was not statistically significant. With regard to the activity limitation domain, there was an increase in mean score of 28.10 at pretest and 66.36 in the Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 36.09 to 42.17 during Posttest III, which was not statistically significant. With respect to the emotional function domain, there was an increase in mean score of 12.05 at pretest and 28.56 in the Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 10.05 to 15.56 during Posttest III, which was not statistically significant. With respect to the environmental stimuli, there was an increase in mean score of 15.79 at pretest and 25.31 in the Posttest III in the study group, which was highly significant at p<0.0001. In the control group, mean score was increased from 16.27 to 20.31 during Posttest III, which was not statistically significant.

This detail conveys the information that there is an improvement in the asthma control, pulmonary functional measures and quality of life scores among the study group patients since the integrated approach had a great influence.
Correlation

The present study identified that during posttest III, there were highly significant (p< 0.0001) strong correlation between quality of life with asthma control and pulmonary functional measures, attitude with asthma control at p<0.01 moderate positive correlation between knowledge and asthma control, pulmonary functional measures and quality of life at p<0.05 and weak positive correlation between knowledge and attitude at p< 0.05, weak negative correlation between knowledge and self-efficacy, self-efficacy and asthma control whereas the control group had weak positive correlation between knowledge and attitude which was significant at p<0.001.

There was an positive correlation between yoga practice and asthma control during posttest I which was significant at p< 0.05, moderate positive correlation between yoga practice and quality of life at p< 0.001 and weak positive correlation between yoga practice and attitude at p< 0.05, moderate negative correlation between yoga practices and knowledge, self-efficacy at p< 0.001 whereas in the posttest III there was an strong positive correlation between yoga practice and attitude, yoga practice and quality of life at p< 0.001, weak negative correlation between yoga practices and knowledge which was significant at p< 0.05.

Regression

On analysing the relationship between study variables and background variables, there was a significant relationship existed between knowledge, attitude and self-efficacy, asthma control, pulmonary functional measures and quality of life during posttest III at p<0.05 for multivariate regression combination on
predictors such as age, gender, education, duration of asthma, frequency of hospital visit and family history.

**Association**

The present study found a significant association between the posttest knowledge score and family history, age of onset of illness, duration of illness, frequency of hospital visits and at p< 0.05 and triggers at p< 0.001 among patients with bronchial asthma in the study group.

Similarly, a significant association between the posttest attitude score and age, education, type of the family, duration of asthma, and triggers at p< 0.05 and education, type of family at p< 0.001 among patients with bronchial asthma in the study group.

There was a significant association between the posttest self-efficacy score and gender, income, duration of asthma and frequency of hospital visit at p< 0.05 and education, type of family, age of onset, duration of asthma at p<0.001 among patients with bronchial asthma in the study group.

There was a significant association between the posttest quality of life score and gender, age of onset at p< 0.05, marital status and residence at p<0.001, education, BMI, duration of asthma, frequency of hospital visit at p<0.0001 among patients with bronchial asthma in the study group.

**6.2 Conclusions**

The study conclusions were the patients with asthma are not aware of the disease process had impaired quality of life; nurses need to know the Quality of life assessment. It is mandatory to educate the patient on bronchial asthma
especially the triggers which improved their knowledge, attitude and self-efficacy, and reduced the severity, controlled the symptoms and improved the quality of life. Avoidance of triggers helps to reduce the severity of symptoms and work productivity is improved.

Patient counselling is one of the most important aspects in developing patients' knowledge about disease, management, precautions, and improving overall quality of life. Even this study revealed that majority of patients had a lack of knowledge about the disease condition. Tarique Hakin et al. (2011) conducted a study on knowledge, attitude, and behaviour of asthmatic patients regarding asthma in urban areas in Khartoum State, Sudan, which resulted that most patients after the study were reluctant to accept that most patients after the study were reluctant to accept as asthmatics rather considered themselves as allergic due to poor knowledge about disease, and this study supported our study which showed similar kind of results.

Yoga is one of the complementary medicines which have a great impact on the human body. The main findings of this study suggested that the practice of yoga can decrease the asthma symptoms and reduce medication use and can improve the quality of life. This study provides some evidence that yoga may be an effective tool in the management of asthma and can be practiced as an adjuvant therapy to standard medical therapy for better outcomes. It is recommended that future asthma research adopt multi-dimensional approaches, larger randomized trials to be complemented with prospective observational studies as well as retrospective analysis and evaluation of existing data.
The findings of the study were consistent with the literature and supported by the studies conducted around the world. Based on the method of selection, sample size and support from many studies conducted throughout the world, the findings could be generalized to the patients with bronchial asthma.

6.3 Implications of the Study

Bronchial asthma has reached epidemic proportions worldwide as we enter the new millennium. Along with rising economy diseases of affluence are growing. More studies are needed to bring out an effective preventive intervention. The findings of the present study may be helpful for such future studies. In this context the findings of the study has valuable implications towards nursing education, administration and research. Some of the implications derived from the present study in various practice and educational settings of nursing are as follows

6.3.1 Nursing Practice

Learning is an active goal directed process transforming knowledge skills and values into new behaviour. Nurses should carefully assess the learners, set the teaching environment, develop good rapport and communication, skilfully deliver the content, and maintain appropriate documentation. Such educational techniques will help the patients to gain knowledge regarding bronchial asthma. Nurses can work as a school health nurse so communication between the teachers and nurses will increase that will help to reduce the incidence of asthma among school children. Nurses have a major role in the preventive aspect than the curative aspect
The present study shows that knowledge, attitude and self-efficacy, pulmonary functional measures and quality of life among patients with bronchial asthma are quite predominant. To reduce this burden nurses should try various theory based strategies such as complementary alternative therapy along with information education communication strategies.

The study reveals that integrated approach has a definite impact in reducing asthma severity, improving knowledge, attitude and self-efficacy and quality of life. To spread this message it is essential for the medical surgical nurses to create awareness, organize yoga classes with teaching programme on bronchial asthma. Such interventions performed either in groups or on one to one basis can reduce severity of asthma symptoms and also bring sense of well-being. Nurses play a vital role in disseminating evidence based strategies to help patients with asthma.

6.3.2 Nursing Education

The healthcare delivery system at present is giving more emphasis on the preventive rather than the curative aspect. The nursing curriculum should incorporate activities like preparation of booklets, handouts, pamphlets, and self-teaching materials for the patients to carry home for further reference. The curriculum should give importance to health education. In-service education should be conducted to improve the knowledge and skill of healthcare professionals. Nursing students should be prepared and motivated to conduct health teaching programmes.

The study also implies that health personnel have to be properly trained on how to prepare information booklets to teach the public regarding bronchial
asthma. Nursing students should be trained to acquire knowledge and ability in assessing the learning needs of the patients with bronchial asthma and to plan out teaching programmes based on hospital and in the community setting. The information booklet developed can be used for educating nursing students and health workers to equip them with necessary knowledge and to educate the community regarding Bronchial Asthma.

The nursing students should be made aware of their responsibility in the prevention of bronchial asthma. They should arrange for health teaching programmes on different topics and make people participate in the programme through role plays and puppet shows. Today nursing curriculum, although includes a course in communication skill, yet it needs to lay further emphasis on information as a process. The traditional system of nursing education considers nursing as giving care and not to make the patient of family members participate. Therefore a need is felt for changing the knowledge and attitude of nursing towards helping patients and become partners in their health care.

Nursing education has ample opportunities to spread the knowledge of Yoga technique to the nursing students as a continuation of their regular curricula. This can help not only the patients but also help individual students to modify their life style to achieve optimum health and also helps in orienting nurses on practice of effective complimentary therapies based on strong research evidence.

Multipurpose health workers are the grass root level primary care providers in the rural areas. The health care delivery system of India in the rural area depends on these workers for their health needs hence nurse educators should organize classes for them to spread the importance of yoga practice.
6.3.3 Nursing administration

Administrators should formulate policies and protocols on yoga session at outpatient basis and other time tested CAM practices with added research evidence. Nurse administrators should use appropriate integration of CAM practices in managing psychological impact at different levels of prevention in various areas of health care delivery system.

The findings of the study could be made use of by health personnel holding administrative position to formulate policies and make necessary changes in educative and healthcare delivery systems. Nursing administrators should make arrangement for providing educational programme to the patients, relatives and caregivers during their stay in the hospital and also during follow-up. They should provide sufficient money, manpower, materials, methods and time to conduct educational programmes. Nurse administrators should conduct in-service education for the staff and students to keep them abreast with all aspects of asthma.

More awareness programmes could be organised and information could be disseminated through media, newspapers, magazines, television and the Internet. Adequate administrative support may be provided to conduct such activities. Periodic surveys should be conducted to find out the prevalence or severity of asthma and causative factors.

6.3.4 Nursing research

The ultimate goal of any profession is to provide its clients with maximum, effective, and efficient services. A profession seeking to improve the practice of its members and to enhance its professional stature strives for the
continual development of a relevant body of knowledge. The present study throws light on patient’s knowledge, attitude and self-efficacy. Quality of life on bronchial asthma. Nurses need to engage in multidisciplinary research so that it will help to improve the knowledge and by applying it, health problems can be solved.

Extensive nursing research in exploring the knowledge level on bronchial asthma is needed, so that mortality and morbidity could be reduced. The need of the patients with asthma have to be explored to prepare effective teaching methods thereby contributing to effective and quality nursing care.

Qualitative and lived in experience of asthmatics, relating to the demographic characteristics, yoga practice and its effects and hindrances encountered by patients can be researched to have a better understanding of the problem.

6.4 Recommendations

- A similar study can be conducted with the use of video assisted or Computer Assisted Teaching.
- Studies may be replicated in other settings especially community areas.
- Long term follow up studies for a period of 1-3 years can be conducted.
- Integrated approach can be extended to patients with severe type of asthma.
- Study can be conducted on the effect of Individualized asthma action plan.
- Comparison can be done in two different settings.
- Biochemical variables could be assessed after yoga intervention.