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A Study to Assess the Effectiveness of Peak Flow Self-Management Plan on Quality of Life for Asthma Patients in Selected Community.

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Back Ground of the Study

Asthma is a chronic disease of the small airways. The hallmarks of asthma are chronic inflammation, reversible obstruction and airflow limitation. Human beings can live without food or water for few hours or even days but cannot live without air. But in asthma, airway spasm and airflow restriction makes breathing difficult leading to air hunger. Bronchial asthma was officially named as specific respiratory disorder by Hippocrates in 450 BC. Asthma has puzzled and confused physicians from the time of Hippocrates to the present day.

While communicable diseases describes mortality and morbidity from major diseases and risk factors to health, "Chronic non communicable diseases are bringing greater disease burden, accounting for more than half of the global mortalities and global morbidity".[2] Sir George Alleyne, calls it the silent tsunami." WHO Director-General warned that asthma is on the rise "everywhere" and referred to it as a festering sore.[2] Asthma is also an epidemic.

In Asia, increased prevalences are likely to be particularly dramatic in India and China. For example, a 2% increase in prevalence in China would lead to an additional 2 million asthma sufferers. Asthma incidences in India have increased significantly over the years in the country. India has an estimated 15-20 million asthmatics[4]. In the recent years, the morbidity and mortality of population due to asthma is increasing despite the advances being made in understanding of this disease and availability of improved medications and information on treatment. World-wide, deaths from this condition have reached over 180,000 annually. Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated.

There has been a great interest in developing treatment guidelines for asthma in many countries. The focus in all asthma treatment guidelines is to control asthma symptoms by involving patients in their treatment planning and execution. Though effective screening, evaluation, and management strategies for asthma are well established in high-income countries, these strategies have not been fully implemented in India as evidence had previously suggested that asthma is not to be treated independently but fitted into the general spectrum of respiratory diseases. Studies have shown that simple educational sessions for asthmatics could have positive impacts on patients' adherence to treatment and control of symptoms.

Problem Statement

The present study was intended to assess the Effectiveness of Peakflow Self Management plan on Quality of life for Asthma Patients in a Selected Community at Coimbatore.

The objectives of the study were:

1. To assess the quality of life and general well being before and after peak flow self management plan in control and experimental group of asthma patients.
2. To assess the effectiveness of peak flow self management plan among asthma patients by comparing the quality of life and general well being between control and experimental group of asthma patients.
3. To assess the acceptability of asthma patients regarding peak flow self management plan in experimental group.
4. To find out the correlation between quality of life and its domain among control and experimental group of asthma patients in pre test and post test.
5. To find the association between demographic and clinical variables with quality of life in control and experimental group.

Hypotheses

Null Hypotheses

Ho1: There will be no significant difference between the mean AQLQ score and well being index score between control and experimental group of asthma patients before and after intervention.

1. Ho2: There will be no significant difference in the mean AQLQ score and well being index score between first and subsequent observations in control and experimental group of asthma patients.
2. Ho3: There will not be any correlation between quality of life and its domains among control and experimental group of asthma patients in pre test and post test.
3. Ho4: There will not be significant association between AQLQ scores and selected demographic and clinical variables in control and experimental group of asthma patients.

Assumptions

1. People with asthma are more likely to report a poor quality of life. This is more pronounced among people with severe or poorly controlled asthma.
2. Incidence of poor quality of life is higher in uncontrolled asthmatics.
3. Peak flow self management plan intervention can influence the outcome of asthma patients such as productivity, fewer asthma episodes, reduced morbidity and disability thus improving the quality of life.

REVIEW OF LITERATURE

Peak Flow Self-Management and Quality of Life

Malarvizhi. et al, (2015) conducted a study on "Effectiveness of Peak Flow Guided Self Management Plan on Asthma Health Outcomes among Patients with Bronchial Asthma. Randomized controlled trial design was used. Interventions given to the group was Self Management plan guided by peak flow measurements that resulted in less number of visits to Outpatient department and days off work. The study concluded that Peak flow guided self management plan reduces the episode of asthma and improves quality of life.[64]

Akiyama (2002) in her literature on Self-Management with Peak Expiratory Flow Monitoring—Treatment for Bronchial Asthma—explains that Peak expiratory flow (PEF) monitoring should be considered in patients with moderate to severe asthma, who are older than 5 years of age, have measurable PEF values, and receive medication on a daily basis. In the practical treatment and management of asthma, the PEF monitoring is most effective in cases where step-wise therapy according to asthma severity is applied in long-term management. The guidelines recommend to determine asthma severity on the basis of symptoms and PEF, and subsequently to select a controller medication for each patient consistent with the severity of the disease. In these strategies, PEF monitoring serves as an important indicator.

Research Methodology

The conceptual frame work of the current research was based on Bandura's self efficacy theory. The sample size of the study was 200 asthma patients in a community at Coimbatore. A quasi experimental study with time series design was used. The samples were selected through purposive sampling technique and selected samples were assigned to control and experimental group (100,100). The subjects in the experimental group received peak flow self management plan. A pre test and post test assessment at the time of interview, 2 months, 4 months and 6 months were done for the subjects in control and experimental groups which was compared before and after the intervention to test the effectiveness of the nursing intervention (peak flow self management plan)

The instruments used for the study consisted of proforma to assess demographic and clinical variable proforma, standardized Asthma Quality of Life Questionnaire to assess symptoms, activity limitation, emotional function and environmental stimuli ultimately assessing the quality of life as well as well being Index to assess the well being of asthma patients in control and experimental group and level of acceptability scale to assess the satisfaction of asthma patients and observation schedules of peak flow diary and peak flow graph in experimental group.

Descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (chi square, paired, independent t-test, repeated measures of ANOVA and Karl pearson's correlation) were used to summarize the data and to test the research hypothesis.

Major findings of the study

- With regard to demographic variables, majority of the asthma patients were males (54%, 72%), married (57%,66%), from rural back ground (69,74), from joint family (84%,79%) in control group and experimental group respectively. Among clinical variables, majority of the asthma

patients had industry around home (81%, 77%), used LPG Gas for cooking (71%,82%), used no peak flow metre (77%, 94%), had family history of first degree relative with asthma (67%,72%), had no habit of smoking (61%, 48%), with moderate asthma (49%,64%), had consultation with physician one month back (58%,51%) and had no presence of co-morbid illness (46%,57%).

- In pre-test, the mean AQLQ scores of control group and experimental group were almost same (95.90, 96.6/220) with t'value 0.88 showed that there is no significant difference at (P>0.05), however in post test I, II, III, with the interval of 2 months, there was marked increase in AQLQ score only in experimental group (127.73, 144.14, 161.17) and it was statistically significant at (P<0.001). There was also significant difference between control and experimental group.
- With regard to general well being index scores also, during pretest, the experimental group had M=29.32/100 that gradually increased to 49.4, 61.2, 80.8 during post test I, II, III respectively and it was statistically significant at (P<0.01).
- On comparison of AQLQ score of pretest, post test 1, post test II and post test III, repeated measures of ANOVA showed significant difference between the two groups. The experimental group had an improvement in AQLQ score and well being that was statistically significant (P<0.001).
- No demographic variables had association with quality of life (P>0.05), and among clinical variables only last consultation in experimental group and industry around house in control group was statistically strongly significantly associated with quality of life (P<0.01).
- With regard to homogeneity, except gender all other demographic variables such as age, education, occupation, marital status, monthly income, residence and type of family were not statistically significantly differed (P>0.05). The two groups (control and experimental) were homogeneous groups and they were comparable groups in respect of their demographic characteristics.

In this study, with regard to Quality of Life among asthma patients was poor before intervention on peak flow self management plan in control (M=95.90/220) and experimental group (M=96.6/220) that showed no significant difference at (P>0.05). However during post test I, II, III after intervention, the AQLQ scores determining the quality of life of asthma patients were higher in experimental group (M=127.7, M=144.1, M=161.1) than the control group (M=98.3, M=100.7, M=103.09) that was statistically significant (P <0.001). This attributes to the effectiveness of peak flow self management plan in improving the quality of life for asthma patients.

With respect to the well being of asthma patients, the well being was poor before intervention on peak flow self management plan in control (M=30.36/100) and experimental group (M=29.3/100) that showed no significant difference at (P>0.05). However during post test I, II, III after intervention, the well being scores determining the well being of asthma patients were higher in experimental group (M=49.48, M=61.28, M=80.80) than the control group (M=35.52, M=40.96, M=45.20) which was statistically significant (P <0.001). This attributes to the effectiveness of peak flow self management plan in improving the well being of asthma patients.

There was no significant correlation between quality of life (AQLQ) and its domains during pretest and post test I and was significantly correlated among the domains in post test II and III in control group. Same way there was no significant correlation between quality of life (AQLQ) and its domains during pretest, post test I (except activity with emotional), post-test II, as well as post-test III among the domains in in experimental group.

There was no significant association between pre test score and selected demographic variables such as age ($\chi 2$ =3.12, χ^2=2.156 p>0.05), Gender ($\chi 2$ =3.10, $\chi 2$=0.01 p>0.05), Education ($\chi 2$=6.46, $\chi 2$=6.56 p>0.05), occupation ($\chi 2$ =2.64, $\chi 2$=2.82 p>0.05), family income ($\chi 2$ =1.35, $\chi 2$=5.06 p>0.05), Area of residence ($\chi 2$ =0.03, $\chi 2$=1.06 p>0.05), and type of family ($\chi 2$ =0.65, $\chi 2$=2.61 p>0.05) in control and experimental group respectively. Thus the pretest scores of AQLQ were not affected by any of the variables of asthma patients.

There was also no significant association between pre test scores and quality of life with selected clinical variables of asthma patients of control and experimental group such as last consultation with physician ($\chi 2$ =4.38, p>0.05 only in control), industries around home ($\chi 2$=0.67, p>0.05 only in experimental group), cooking fuel used ($\chi 2$ =0.51, $\chi 2$=2.15 p>0.05), absence from work ($\chi 2$ =2.08, $\chi 2$=1.36 p>0.05), medication used ($\chi 2$ =0.07, p>0.05 only in control), smoking habit ($\chi 2$ =1.94, p>0.05 only in experimental), family history of asthma ($\chi 2$ =0.04, $\chi 2$=0.32 p>0.05), duration of asthma ($\chi 2$ =1.07, p>0.05), asthma severity ($\chi 2$ =0.65, $\chi 2$=2.61 p>0.05), presence of co-morbidity ($\chi 2$ =0.41, $\chi 2$=3.29 p>0.05), and allergies ($\chi 2$ =0.41, $\chi 2$=3.29 p>0.05).

Only last consultation showed association in experimental group and industry around house and smoking habit in control group were statistically strongly significantly associated with quality of life (P<0.01). Thus the findings of the present study attributed to the effectiveness of peak flow self management plan in improving the quality of life and well being of asthma patients. This stresses the importance of peak flow self management for better asthma control that can be included in asthma care and strategy.

Conclusion

Peak flow self management is an effective method for monitoring the lung status and record symptoms for moderate to severe asthma who require daily asthma medications. It helps to detect an attack and begin treatment early thereby prevent asthma episode and severity as well as the physical and emotional effects such as breathing difficulty or panic state. The findings of the present study has generated knowledge in the field of nursing practice in asthma care and treatment. The study findings are also supported by the studies conducted in India and abroad. Thus self managing asthma correctly allow asthma patients to avoid serious attack and avoid a severe asthma emergency enabling them to lead an active, healthy and improved quality of life.

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