EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION ON PSYCHO-PHYSIOLOGICAL PARAMETERS AMONG PATIENTS WITH COPD AT UNIVERSITY TEACHING HOSPITAL

*Naveen Jebakumar M, 1Porkodi A, 2Akila P

1M.Sc. II year, Faculty of Nursing, Sri Ramachandra University, Porur, Chennai, Tamil Nadu, India.
2Reader (Ph.D), Faculty of Nursing, Sri Ramachandra University, Porur, Chennai, Tamil Nadu, India.

ABSTRACT
Anxiety is common among COPD patients and considerably alters breathing pattern. The aim of this study was to assess the effectiveness of progressive muscle relaxation on psycho-physiological parameters among patients with COPD. A sample of 40 COPD patients were randomly assigned to study and control groups and PMR was given. Results showed that PMR significantly reduced anxiety and thereby peak expiratory flow rate (PEFR), blood pressure and heart rate.

Keywords: Progressive Muscle Relaxation, COPD, Anxiety, Physiological Parameters.

INTRODUCTION
The prevalence of chronic disease is showing an uphill trend in most of the countries and about one-third of the population is affected with chronic diseases. Among the chronic diseases, COPD is a serious contemporary health issue. Psychological comorbidities such as anxiety and depression are very common among COPD patients. Dyspnea is a common symptom of many lung disorders. The feeling of not being able to get air, especially on a regular basis, can be upsetting. This anxiety can further deteriorate the shortness of breath. There is a direct relationship between dyspnea and anxiety and that if one were reduced, the other also might lessen. Relaxation exercises are used to improve functional status of patients with COPD by reducing the respiratory rate and increasing alveolar ventilation [1-6].

OBJECTIVES
The objectives of the study were to assess the effectiveness of progressive muscle relaxation on psycho-physiological parameters among patients with COPD, and to associate the psycho-physiological parameters with selected background variables among patients with COPD.

MATERIALS AND METHODS
The research design adopted by the investigator was an experimental pretest-posttest control group design. A total of 40 patients (study group-20, control group-20) who were diagnosed with COPD were randomized. Participants were randomly assigned by simple lottery method to either the study or the control group. Based on the inclusion and exclusion criteria patients were selected for the study. The investigator conducted the pretest after one day of admission to chest ward on background variables, Blood pressure, Heart rate, PEFR, Borg CR10 scale and SSAI using standardized tool. The investigator then demonstrated the PMR on one to one basis at the bedside and return demonstration was done by them after each session. PMR was done twice a day and continued for five days under guidance and a posttest was conducted on the fifth day. The time spent for data collection procedure was 20-30 minutes for each study participant; whereas, control group participants received only the routine nursing care. After completion of the procedure each individual was provided with the opportunity to clarify their doubts. After posttest PMR was demonstrated to the control group participants.

Corresponding Author:- Naveen Jebakumar M Email:- naveenjebakumar@gmail.com
ETHICAL CONSIDERATION

The study was conducted after the approval from the Institutional Ethics committee. Participants were explained clearly about the study purpose and a written informed consent was obtained before conducting the study. Confidentiality of the responses were assured and maintained throughout the study [7-11].

CONCEPTUAL FRAMEWORK

The investigator has applied the “Modified Ernestine Weidenbach’s helping art of clinical Nursing theory” (1964) to be appropriate for the current study. Weidenbach’s in her theory has stated that nursing action has four distinct kinds of actions that include reflex, conditioned, impulsive, and deliberate nursing practice. The deliberate nursing practice further comprises of three components. They are as follows: 1. Identification of patient’s need (assessment of background variables) 2. Ministration of the help needed (progressive muscle relaxation) and 3. Validation of action (assessment of psycho-physiological parameters) [12-16].

RESULTS

Table 1 illustrates that in the pretest 14(70%) of the study group patients had severe anxiety and in the control group 19(95%) patients had moderate anxiety. Whereas in the posttest, 18(90%) patients in the study group and 11(55%) patients in the control group had moderate anxiety.

Table 2 illustrates that the physiological parameters such as diastolic BP and dyspnea were statistically significant when compared to control group. Whereas no significant improvement in systolic BP, heart rate and PEFR.

There was no significant association between anxiety and demographic variables except residence during the pretest in the study group which was statistically significant at p<0.05

NURSING IMPLICATIONS

With prevalence of COPD showing an uphill trend in most countries it is imperative that implications drawn from the study are of vital concern to the field of nursing including nursing service, education, administration and research.

Nursing practice

PMR can be implemented as a part of the treatment and can be carried out by caregivers in the day to day activities while caring for COPD patients. The nurse needs to motivate the patients to practice PMR in their daily life. It is nurse’s responsibility to carry out and teach PMR as a part of pulmonary rehabilitation in the community as well.

Nursing Education

On education perspective it is important that nurses not only be aware of the techniques but also master them. Progressive muscle relaxation should be emphasized in the nursing education so that tomorrow's nurses are better equipped to handle and preserve the physical, emotional and social disabilities associated with COPD and other diseases.

Nursing Administration

Nurse administrator should organize programs on PMR and proper protocols and resources should be arranged for the nursing staff to implement PMR for patients to preserve and promote their wellbeing.

Nursing Research

A team response must be generated among the nurses to perform the research on application of PMR, standards and protocols and to implement it in practice [18,19].

RECOMMENDATIONS FOR FUTURE STUDY

1. A similar study can be replicated with a larger sample size
2. A multicenter study can be done among patients with COPD
3. A similar study can be done using audio instructed aids
4. Home based practice of PMR can also be studied
5. A similar study can be done for a longer period and regular follow up.

Table 1. Frequency and percentage distribution of anxiety during pretest and posttest among patients with COPD in the study group and the control group (N=40)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Anxiety</th>
<th>Study group (n=20)</th>
<th>Control group(n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Pretest</td>
<td>Mild</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>Posttest</td>
<td>Mild</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 2. Mean, standard deviation, independent t value and p value of physiological parameters among patients with COPD in the study group and the control group during posttest (N=40)

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Physiological parameters</th>
<th>Study group (n=20)</th>
<th>Control group (n=20)</th>
<th>Independent 't' value and p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Systolic BP</td>
<td>Mean 127, SD 10.8</td>
<td>Mean 135.5, SD 18.2</td>
<td>-1.796 0.081(NS)</td>
</tr>
<tr>
<td>2.</td>
<td>Diastolic BP</td>
<td>Mean 79.5, SD 8.87</td>
<td>Mean 88.5, SD 9.3</td>
<td>-3.126 0.003**</td>
</tr>
<tr>
<td>3.</td>
<td>Heart rate</td>
<td>Mean 73.85, SD 5.47</td>
<td>Mean 75.85, SD 8.7</td>
<td>-0.866 0.392(NS)</td>
</tr>
<tr>
<td>4.</td>
<td>PEFR</td>
<td>Mean 255.50, SD 28.37</td>
<td>Mean 256.50, SD 33.91</td>
<td>-0.101 0.920(NS)</td>
</tr>
<tr>
<td>5.</td>
<td>Dyspnea</td>
<td>Mean 3.55, SD 1.037</td>
<td>Mean 6.75, SD 1.070</td>
<td>-9.603 0.000***</td>
</tr>
</tbody>
</table>

Figure 1. Percentage distribution of age in years (N=40)

Most patients seven (35%) in the study group were between the age group of 51 and 60 years and in the control group six (30%) of them were distributed between 41 and 50 years, 51-60 years and 61-70 years respectively.

Figure 2. Percentage distribution of gender (N=40)

With regard to gender 16(80%) in the study group and 15(75%) in the control group were male.

Figure 3. Percentage distribution of GOLD classification of COPD (N=40)

As per GOLD classification of COPD 17(85%) and 14(70%) were in class II-moderate COPD in both the study group and in the control group respectively.
CONCLUSION
There was a significant difference in the psychophysiological parameters among patients who performed PMR than those who do not. Relaxation reduces anxiety there by blood pressure, heart rate and dyspnea.

ACKNOWLEDGEMENT
It is my privilege to be a part of the Sri Ramachandra University and I thank the Managing Trustee, for allowing me to utilize the resources available in the University. I express my feeling of deep gratitude, indebtedness and reverence to my esteemed teachers and eminent guides Prof. P.V. Ramachandran, M.Sc.(N.), Chairman Nursing Education, Dr. A. Porkodi, M.Sc(N.), Ph.D., Reader, Dept of Medical Surgical Nursing and Mrs. Akila P, M.Sc.(N.), Lecturer, Dept. of Medical Surgical Nursing Sri Ramachandra College of Nursing, Sri Ramachandra University for their constant encouragement, exemplary suggestions, enduring guidance and all their blessings for the successful completion of my research.

REFERENCES
14. Poli DF and Hungerl BP. Nursing research principles and methods. 6th edition Philadelphia: Lippincott Williams