

A Study to Assess the Knowledge and Practice of Breathing Exercises among Patients with COPD in Tertiary Care Hospitals

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Abstract: ***Methods:** A cross sectional non experimental descriptive design was adopted for this study. A simple random sampling was applied for selection of samples. A socio-demographic questionnaire was designed and the association between socio-demographic profiles and knowledge and practice were assessed using statistical inferences. The knowledge regarding the breathing exercises was assessed by using a structured questionnaire and practice were observed using a self reported rating scale and an observation checklist. **Background:** In 2011, almost 24 million adults over the age of 40 had COPD in India and this would increase by 34% to approximately 32 million by 2020. The mortality rate due to COPD in India is the second highest in the world and has got a huge economic burden. Even though breathing exercises in long term can reduce dyspnoea and incidence of exacerbation, breathing exercises are not used routinely as a part of treatment. Since there is no cure for COPD, a primary goal of most treatments is the reduction and management of breathlessness. **Aim:** The purpose of this study was to assess the knowledge and practice of breathing exercises and to find the association between knowledge and practice of breathing exercises among patients with COPD in tertiary care hospitals and to associate it with selected socio demographic variable. **Results:** Out of one hundred sample majority of sample belonged in the age group of 61 to 70 years and were males (76%). The mean knowledge score of sample was 8.87 with sd 3.35 which fell into the category of average knowledge score and mean practice score was 14.36 with sd 5.82 from out of 55 samples who were having knowledge about breathing exercises. There was a fair degree of significant positive linear correlation between knowledge and practice of breathing exercises ($r = 0.73, p < 0.0001$). Socio demographic variables like age, education, occupation, monthly income, regular treatment, place of residence and awareness of breathing exercises were significant to knowledge of breathing exercises whereas practice was significant only with occupation and monthly income. **Conclusions:** The results of present study, knowledge score (12%) practice score (9%), showed that there was a need for teaching about disease condition and the correct method of practicing breathing exercises to maintain a quality and productive life.*

Keywords: COPD, Breathing exercises, Tertiary care hospital

1. Introduction

COPD is one of the leading cause of morbidity and mortality in the developed as well as developing countries. It makes a person loss precious years of his life and also contributes significantly to the global economic burden. Globally, COPD has emerged as the major cause of morbidity and mortality expected to become the 3rd most leading cause of death and the 5th leading cause of loss of 'Disability Adjusted Life Years'(DALYs) as per projection of the Global Burden of Disease Study (GBDS). According to WHO, deaths due to COPD are estimated to increase by 160% by 2030. Studies had shown that patient education regarding their condition, warning signs and symptoms, pathology, and treatment is believed to be the key element of successful treatment of COPD. The management of COPD is symptomatic, and includes pharmacological and non pharmacological treatment. Along with pharmacological treatment, pulmonary rehabilitation is found to be cost-effective. It includes patient education, exercise training including breathing exercises and psychological intervention. Even though breathing exercises in long term can reduce dyspnoea and incidence of exacerbation, breathing exercises are not used routinely as a part of treatment. Since there is no cure for COPD, a primary goal of most treatments is the reduction and management of breathlessness. The patients with poor exercise habits require to strengthen their respiratory capacity for maintaining physical health like any other type of muscles, the respiratory muscles can be strengthened through regular breathing exercise without the use of any mechanical

devices. Studies suggest that, in people with COPD controlled breathing exercises may help increase respiratory muscle strength and endurance, reduce dynamic hyperinflation of the rib cage and improve alveolar gas exchange.

2. Aim

To assess the knowledge and practice of breathing exercises among patients with COPD in tertiary care hospitals.

3. Materials and Methods

The study was conducted in Respiratory Care Unit of tertiary care hospitals. A non-experimental research design was adopted to assess the knowledge and practice of breathing exercises among patient with COPD. The conceptual framework used for this study was Health Promotion Model proposed by Nola J Pender. Simple random sampling method was used and 100 samples were selected.

The research tools used were

Part I: A structured questionnaire to assess Socio demographic characteristics

Part II: A structured questionnaire to assess Knowledge and practice of breathing exercises

Part III: Section 1: Self-reported rating scale to assess practice of breathing exercises

Section 2 : Observation checklist to assess practice of breathing exercises

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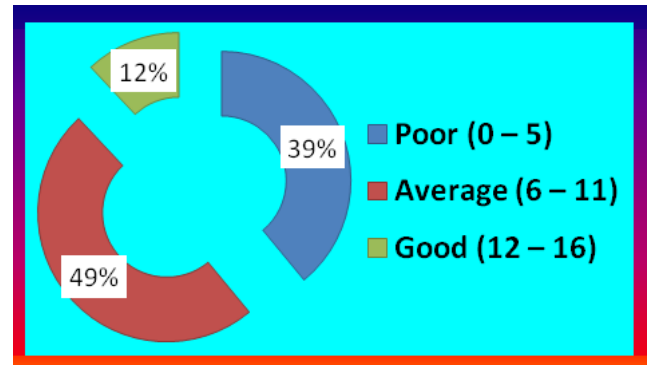
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4. Results

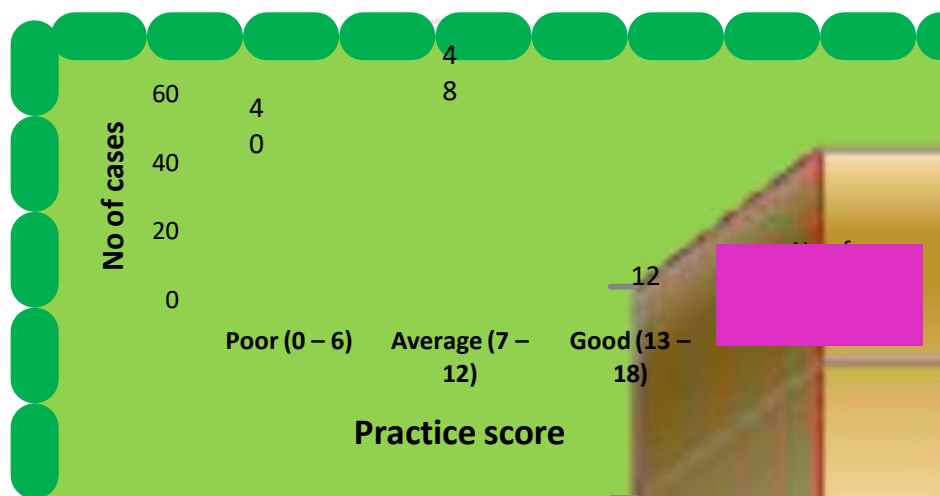
Sample characteristics were presented as socio demographic data like age, gender, educational qualification, place of residence, occupation, family income and other relevant sample characteristics like duration of disease, health care facility available, and hospital admissions.

As per socio demographic data 47% sample belonged to age group of 61-70 years, majority of the samples 76 % were males, 44% had secondary education, 53% of the samples belonged to rural area, 40% were farmers ,majority (48 %) were diagnosed of having COPD for a period of 5-10 years duration, 50% were having monthly income of less than Rs 5000/- and 68 % were regular in taking treatment for COPD.



Knowledge score of breathing exercises

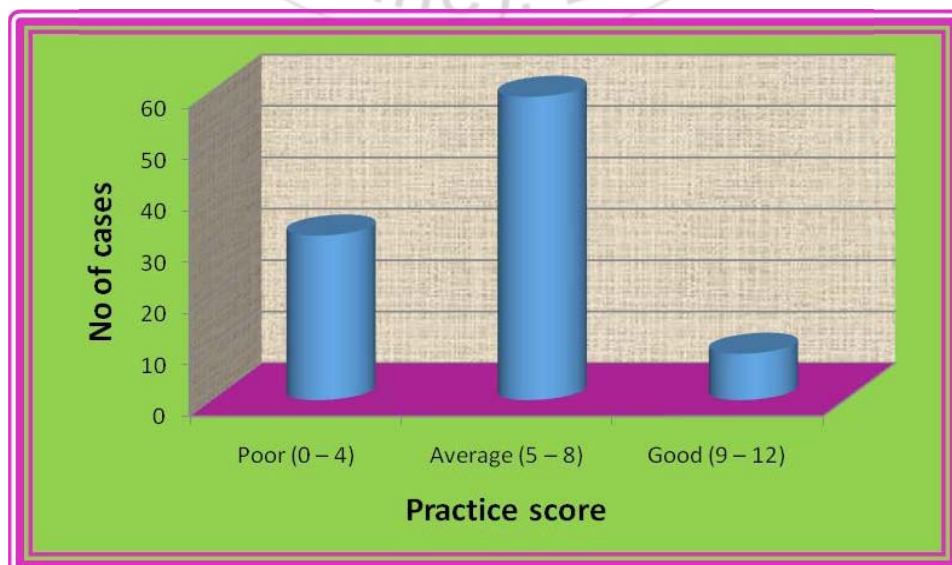
Out of all sample only 12% of sample had good knowledge, 49% had average knowledge and 39 % had poor knowledge regarding breathing exercises among COPD patients.



Practice score distribution (By self reported rating scale)

The practice score of sample regarding the breathing exercises was done by self reported rating scale consisting of 9 items .Each item was given three responses like always, sometimes , never and given a score of 2, 1 and 0 respectively. Only 12 % had good practice of breathing exercises whereas 48 % had average and 40 % had poor

practice. 50% samples were not practicing breathing exercises daily and only 15% were practicing daily. Out of this 15% were practicing pursed lip breathing , 12% were practising deep breathing exercise ,only 1% practiced diaphragmatic breathing exercise and only 3% practiced all the above exercises.

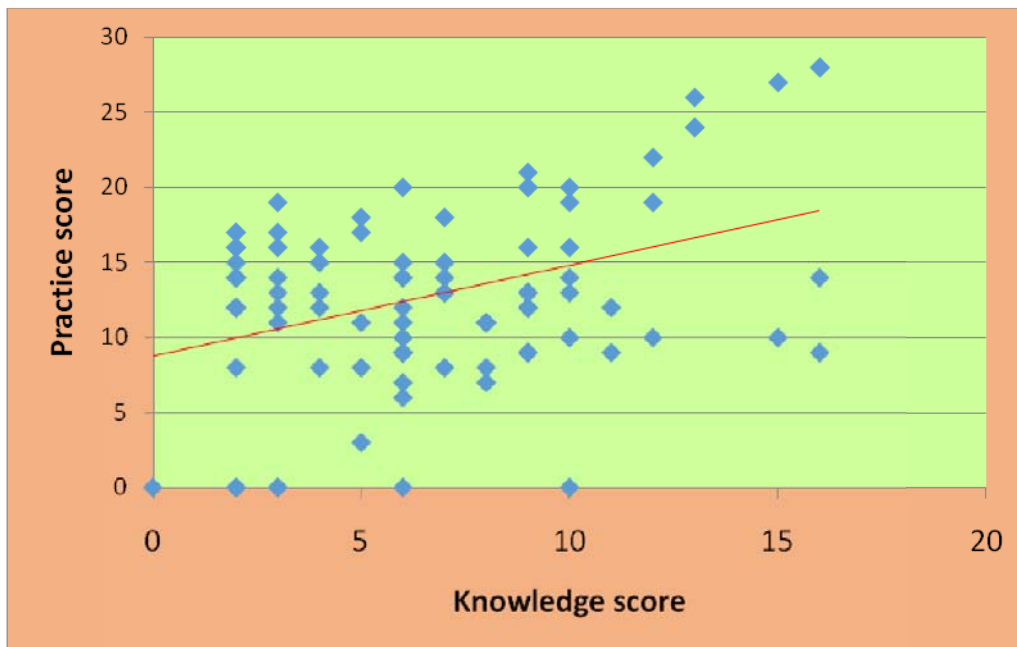


Practice score distribution (By check list)

The practice score of sample regarding the practice of breathing exercises was observed by using an observation checklist consisting 4 steps for pursed lip breathing exercise, 5 steps for diaphragmatic breathing exercise and 3 steps for deep breathing exercise. Findings of the study by observation checklist for assessing practice of breathing exercises showed that 59% had average practice ,9% had good practice whereas only 32% had poor practice.

Correlation between knowledge and practice score in study group, (n = 100)

	r Value	P Value
Correlation between knowledge score and Practice score	0.73	<0.0001



Association between knowledge and Practice

The Pearson correlation coefficient calculated value was $r = 0.73$. There was highly significant correlation exists between knowledge and practice score in study group as $p < 0.0001$. Thus the findings were suggestive of that as the knowledge level increases practice level also increases significantly.

breathing exercises only occupation and monthly income had statistically significant association with demographic variables.

4) The Pearson’s correlation coefficient was $r = 0.73$ and the correlation between knowledge and practice score was found statistically highly significant ($p < 0.0001$) and there was a fair degree of positive linear relationship between the knowledge and practice of breathing exercises.

5. Major Findings of the Study

- 1) Out of 100 samples 12% had good knowledge about breathing exercises, 49% had an average knowledge and 39% of samples had poor knowledge. Mean knowledge score of the samples was 33.3 ± 3.71 . Except age ($p < 0.005$), education (< 0.001), occupation (< 0.05), monthly income (< 0.005), place of residence ($p < 0.0001$) and regular treatment ($p < 0.0001$), awareness of breathing exercises, no other demographic variables had statistically significant association with knowledge
- 2) The practice score of sample regarding the breathing exercises was done with a self reported rating scale with 09 items and an observation checklist consisting of a total of 12 steps. As per self reported rating scale it was seen that 48% had average practice score, 40% had poor practice whereas only 12(12%) had good practice score out of maximum practice score of 18 at mean $14.36 (SD 5)$ with $p > 0.05$
- 3) By checklist 59% had average practice score , 32% had poor practice score where as only 9(9%) had good practice score, out of maximum practice score of 12 at mean $14.36 (SD 5)$ with $p > 0.05$. For practice of

Analysis

Descriptive statistics were used to analyse the sample characteristics. The collected data was tabulated and analysed using ANOVA and Mann Whitney U test. SPSS-16 software was used for data analysis.

6. Conclusion

The result of the study helped to find out the level of knowledge and practice of breathing exercises and the factors affecting the knowledge and practice of breathing exercises among patients with COPD which enabled us to make them aware of the importance of breathing exercises in preventing exacerbations and frequent hospital admissions.

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