Effectiveness Of A Patient Education Programme On Therapeutic Compliance Of Patients With Chronic Obstructive Pulmonary Disease Admitted In Medical Wards Of Medical College Hospital Kottayam

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Abstract

Background of the study: *Chronic Obstructive Pulmonary Disease (COPD) is characterized by chronic airflow limitation and a range of pathological changes in the lungs. Some significant extra pulmonary effects, and important co morbidities which may contribute to the severity of the disease in individual patients (Global initiative for Chronic Obstructive Lung Disease). According to the World Health Organization Chronic Obstructive Pulmonary Disease (COPD) is a life threatening lung disease that interferes with normal breathing. It is more than a smoker's cough. More than 3 million people died of COPD in 2012 which is equal to 6% of all deaths globally that year. More than 90% of COPD deaths occur in low and middle income countries.Chronic Obstructive Pulmonary Disease (COPD) is considered as a major health problem[1s].COPD mainly occurs due to environment pollution, industrialization, smoking tobacco, mining and mill dust exposure, overcrowding. Chronic pulmonary disease poses enormous burden to society both in terms of direct cost of health care services and indirect cost to society through loss of productivity and illness. Chronic Obstructive Pulmonary Disease refers to several disorders that affect the movement of air in and out of the lung. Although the most important of these obstructive, bronchitis and emphysema may occur in pure form, they most commonly coexist, with overlapping clinical manifestations.*

Objectives: *To find out the effectiveness of patient education programme on therapeutic compliance among patients admitted in Medical wards with Chronic Obstructive Pulmonary Disease*

Methods: *The research study design selected for this study was descriptive survey design.The research design adopted for the present study was Quasi experimental, pretest, posttest design with control group.Consecutive cases were selected from the medical wards. Then the investigator to reassessed the therapeutic compliance of both group by administering the specific tool. Then a patient education programme was conducted for the experimental group, on the second day of admission. Post-test done two weeks later with same tool. After discharged the patient first and second week participant were called over by phone to make sure that stick on the compliance regimen. The significance of difference between the control and experimental group in relation to the effect of structured teaching programme on therapeutic compliance of COPD. The data analyzed using mean, standard deviation, independent t-test, tables and figures Structured interview schedule to assess the socio demographic and clinical data among patients admitted with COPD in medical wards. It includes age, sex, religion, type of family, education, occupation, financial status. It includes co-morbidities, duration of disease, treatment of COPD, habits of smoking. Structured interview schedule-structured questionnaire to assess therapeutic compliance of COPD*

Results: *After patent education programme Compliance to medication and inhaler use in experimental group mean is posttest compliance score was 5.0 and control group posttest compliance score was 2.0. Independent T test is calculated. (p = <0.01). Hence there was significant difference after the intervention of compliance to medication and inhaler use.Post test compliance to exercise in experimental group mean was 3.5 and control group post test compliance score was 1.0 independent test is calculated (p = <0.001). Hence there was a significant difference after the patient education programme of compliance to exercises. Post test compliance to diet score in experimental group mean was 3.0 and control group median was 1.0 independent T test is calculated (p = <0.001). Hence there was a significant different after the patient education programme of compliance to diet.*

Post test compliance to following score in the experimental group median was 5.0 and control group median was 2.0. Independent T test is calculated (p=>0.001). Hence there was a significant difference after the patient education programme of compliance to follow up. The present study found out that post test mean score of therapeutic compliance between experimental group and control group is 4.1 and control group 1.3 independent

t-test is calculated p = (<0.001). Hence there was significant different after the intervention of patient education programme.
Conclusions: *Based on the finding of the study, following conclusions were drawn After patient education programme has a significant improvement on drug compliance,compliance to exercises,compliance to follow up. Therapeutic compliance of patient with COPD in medication and inhaler use after the patient education programme has a significant improvement on drug compliance. The patient education programme has a significant effectiveness in therapeutic compliance of patient with COPD*
The data was analyzed using mean, standard deviation, student t-test, tables and figures.
Keywords: *Therapeutic Compliance; Chronic Obstructive Pulmonary Disease; Morbidity*

I.   Introduction

"When you can't breathe, nothing else matters''
(American Lung Association)

Chronic Obstructive Pulmonary Disease (COPD) is considered as a major health problem[1s].COPD mainly occurs due to environment pollution, industrialization, smoking tobacco, mining and mill dust exposure, overcrowding. Chronic pulmonary disease poses enormous burden to society both in terms of direct cost of health care services and indirect cost to society through loss of productivity and illness. Chronic Obstructive Pulmonary Disease refers to several disorders that affect the movement of air in and out of the lung. Although the most important of these obstructive, bronchitis and emphysema may occur in pure form, they most commonly coexist, with overlapping clinical manifestations.[2]

Once the disease is diagnosed, patient education, smoking cessation, pharmacological and non-pharmacological method are required to ameliorate signs and symptoms of COPD. The pharmacological treatment includes bronchodilators, corticosteroids, and antibiotics. Failure to follow the treatment modalities may lead to exacerbations and frequent hospitalizations[3].

Patient beliefs about COPD, as well as their motivation and expectations about the likelihood of success of medical interventions, can influence adherence rates. Other critical factors include the patient's understanding of their illness and therapy, and the complexity of the prescribed treatment regimen. Incorrect inhaler technique is also a common failing. When prescribing in primary or specialist care, healthcare professionals should address adherence as a vital part of the patient consultation. Improved patient education may also increase adherence rates.

Background of the problem

Over the past 30 years, the scientific literature describing the medication taking behavior of patients has been both extensive and remarkably predictable in its documentation of the ubiquity of patients' under-use of chronic therapies[4]. While the consistency of these observations has remained unchanged, the literature on patient adherence has recently shown a shift in the terminology used to describe both patient therapeutic behavior and the associated philosophy of the clinician patient relationship

The earliest studies of medication-taking behavior refer to patient "compliance", which is generally described as the degree to which patient behavior coincides with the clinical prescription[4]. Yet even 30 years ago, Sackett and Haynes[4]described the word "compliance" as potentially troublesome, since by definition it implies a one-sided paternal relationship, with the patient as the passive recipient of a clinical edict. Within this framework, patients can either yield to the wisdom of the doctor (good patient) or defy doctor's orders (bad patient). The term adherence, on the other hand, suggests a more willing partnership between clinician and patient and, as a result, has largely replaced the term compliance in most state of the art behavioral, pharmacological and clinical trial research in globally.

Globally terms like "concordance" or "therapeutic alliance"[5] have gained wide support because they suggest that "the work of the prescriber and patient in the consultation is a negotiation between equals and the aim is therefore a therapeutic alliance between them. This alliance, may, in the end, include an agreement to differ. Its strength lies in a new assumption of respect for the patient's agenda and the creation of openness in the relationship, so that both doctor and patient together can proceed on the basis of reality and not of misunderstanding, distrust and concealment.[5]Regardless of the terminology used, there has been increased recognition that effective interventions to promote appropriate use of prescribed medications in the management of chronic disease, must acknowledge and respect patient beliefs, abilities and therapeutic goals [6].

Need and significance of the study

COPD is the fourth leading cause of death in India and is projected to be the third leading cause of death in both males and females by the year 2020. It is estimated that there may be currently be 16 million people in the India currently diagnosed with COPD.It is estimated that there may as many as an additional 14 million or more in the India still undiagnosed, as they are in the beginning stages and have little to minimal symptoms and have not sought health care yet. Men are seven times more likely to be diagnosed with emphysema than women, though the prevalence in women is on a steady increase and this number is lowering with each year.

The investigator during his clinical experience has observed that most of the patient with Chronic Obstructive Pulmonary Disease admitted in medical wards of Medical College Hospital, kottayam were around 40-70 years and found that they have no therapeutic compliance towards the prescribed regimen. The investigator believe that good patient education programme can maintain an optimal level of health in patients with COPD.

Table 1
Statistics of patients with COPD admitted in Medical College Hospital, Kottayam in 2020-2022.

Year	No: of COPD Patients
2020	360
2021	400
2022	410

Chronic Obstructive Pulmonary Disease (COPD) is characterized by chronic airflow limitation and a range of pathological changes in the lungs. Some significant extra pulmonary effects, and important co morbidities which may contribute to the severity of the disease in individual patients (Global initiative for Chronic Obstructive Lung Disease). According to the World Health Organization Chronic Obstructive Pulmonary Disease (COPD) is a life threatening lung disease that interferes with normal breathing. It is more than a smoker's cough. More than 3 million people died of COPD in 2012 which is equal to 6% of all deaths globally that year. More than 90% of COPD deaths occur in low and middle income countries.

Statement of the problem

Effectiveness of a patient education programme on therapeutic compliance of patients with Chronic Obstructive Pulmonary Disease admitted in Medical wards of Medical College Hospital, Kottayam.

Objective

To find out the effectiveness of patient education programme on therapeutic compliance among patients admitted in Medical wards with Chronic Obstructive Pulmonary Disease

Operational definitions

1. Effectiveness: Effectiveness is the ability to cause the expected or intended result. In this study, effectiveness refers to the difference in the therapeutic compliance between experimental and control group after giving patient education programme.
2. Patient education programme: Refers to a planned and organized education programme prepared by the researcher on different aspects in the care of patient with Chronic Obstructive Pulmonary disease, such as medicine, inhaler use, diet. Exercise and follow up. The programme aimed at educating the patient with Chronic Obstructive Pulmonary Disease regarding therapeutic compliance
3. Compliance: Compliance refers to the degree to which the patient correctly follows medical advice, inhaler use, diet, exercise and follow up as measured using a therapeutic adherence scale.
4. Patient with Chronic Obstructive Pulmonary Disease: In this study it refers to the individuals those who are clinically diagnosed to have one year or more duration of Chronic Obstructive Pulmonary Disease admitted in medical wards of Medical College Hospital kottayam.

Hypothesis

There is difference in therapeutic compliance between experimental and control group

Conceptual framework

A conceptual framework presents logically constructed concepts to provide general explanation of the relationship between the concepts of the research study without using a single existing theory. It helps to understand the study concepts and their relationship with each other to provide foundation for theory testing or theory developmental research.

This study adopted "Health Promotion Model Theory" byNola J Pender. Pender's health promotion model theory was first published in 1982 and later revised in 1996 and 2002 .It is used for nursing research ,education and practice .Research has been conducted on the model since its inception. 250 article have been

published in English language that use or apply Pender`s HPM. Directed at improving an overall sense of wellbeing, Pender's model consider the holistic needs of each individual and their relationship with the environment to predict and explain health promoting behaviors. The purpose of the model is to assist nurses in understanding factors that affect health promoting behaviors.

The health promotion model is based on eight key components of nursing;
1. Person
2. Environment
3. Health
4. Illness
5. Individual characteristics and experiences
6. Behavior specific cognitions and affect
7. Behavioral outcome

Pender's health promotion model (2011) outlines the theory's major components as follows;
1. Individual characteristics and experiences related to prior behavior and personal factors(biological, psychological, sociocultural).
2. Behavior: Specific cognition and affect, perceived benefits of action ,perceived barriers to action, perceived self-efficacy, activity related to affect, interpersonal influences and situational influences.
3. Behavioral outcome: Health promoting behavior including the desire behavior end point or outcome of health decision making and preparation for action.

Application of models in this study.
The perceptual factors in this study were;
• Importance of compliance to therapeutic regimen.
• Patient's concepts regarding drug therapy.
• Patient 'attitudes towards follow up.
• Benefits of compliance to exercise.
• Current state of compliance
• Benefits of compliance to diet
• Barriers to compliance

The modifying factors were;
• Demographic factors: age, sex, education, income, religion
• Interpersonal: family members, Health personnel
• Situational: Exposure to mass media, TV, Radio, Newspaper
• Behavioral: Related to health practice of family members and life style changes.
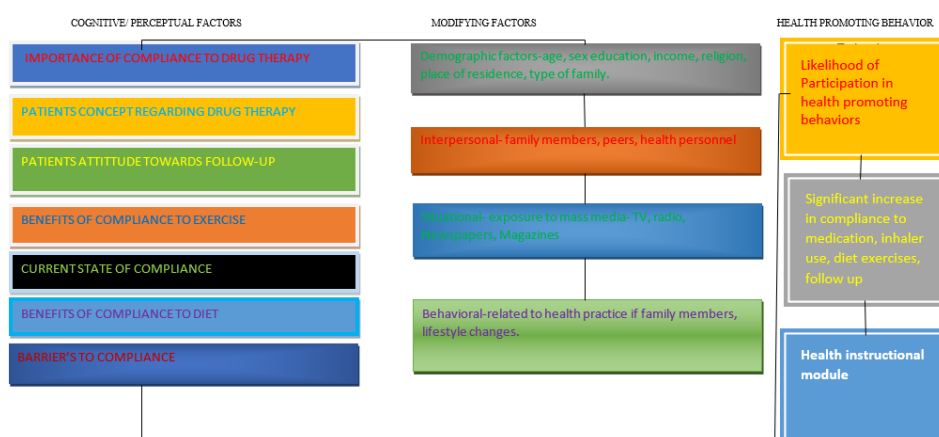
Figure:1. Nola J Pender. Pender's health promotion model

Summary
The present study was intended to find out the effectiveness of a patient education programme on the therapeutic compliance of a patient with COPD. This chapter deals with the background of the study, purpose of the study, description regarding statement of the problem, objective, operational definitions, assumption and theoretical frame work of the study. The conceptual framework used in this study is Nola J Pender's health promotion model.

II.   Review Of Literature

Introduction

   Review of literature involves the identification, selection, critical analysis and written description of patient finding on the topic of interest. It helps the research worker to develop a thorough understanding and insight into previous works and trends that have emerged.

   The review can also help in reaching a number of important specific goals. A review of literature can help the researcher to be alert to research possibilities that have been overlooked. This chapter deals with review of literature which gives an insight into various aspects of the problem under study.

- **Reviews related to diet**
- **Reviews related to exercise**
- **Reviews related to Therapeutic compliance of medication and inhaler use**

   COPD is a progressive, debilitating and often fatal disease with treatment options that can improve quality of life and reduce exacerbations, but cannot fully reverse or control disease symptoms. The nature of the disease, the treatment, and patient beliefs and expectations about therapy all combine to influence patient adherence to therapy

   As with other chronic treatment regimens, non-adherence with asthma and COPD therapy is widespread and, as such, is a significant risk factor for morbidity and mortality[7]. Conservative estimates indicate that almost half of the prescription medications dispensed each year for these conditions are not taken as prescribed. Non-adherence can take many forms: it can be a failure to collect the initial prescription (primary non-adherence), under-use of therapy (secondary non-adherence) or premature discontinuation of therapy. Watts.[7]examined primary non-adherence in patients with COPD by matching prescriptions written to those collected over a 3-month period. The study included both new and repeat prescriptions for COPD medication. Of 359 documented prescriptions written, only 251 (70%) were collected. A similar study by Kelloway.[8]found that the adherence rate for inhaled corticosteroids (ICS) among adult patients was 57% of prescribed. Since these adherence estimates are based on refill rates, they represent the maximum possible levels of adherence and do not provide any information on the day-to-day patterns of medication use in the home.

   Even when patients collected prescriptions for medication, studies of secondary non-adherence (rates of medication use) suggest that long-term rates of adherence to preventive therapies (e.g. controller or preventer medications) among adult patients are low. Studies by Spector[9], Mawhinney and coworkers[10,11] Yeung.[12], Rand and coworkers [14,16] and others, which used electronic monitoring of dispensing, suggest that average adherence to asthma and COPD regimens is <50% of prescribed, and may dip much lower. Studies in both asthma and COPD also suggest that, while patients tend to under-use controller or maintenance therapies, symptom-relieving drugs such as bronchodilators are often overused[16,17].

   Only a limited number of studies have specifically examined patient adherence with COPD therapy. One of the earliest, a small study conducted by Dolce[18], examined self-reported adherence in 78 outpatients being treated at a medical Centre in the south-eastern region of the USA. Patients reported that they were prescribed on average six medications, requiring different dosing regimens and modes of administration. Poor pressurized metered-dose inhalers technique was common (31%) and >50% of patients reported regularly under-using prescribed medications. The study's authors did not find that prescription patterns or patient demographic variables were associated with adherence; however, patients did report that they were more likely to overuse rescue medications when they were experiencing respiratory distress.

   While the Dolce[18]study described self-reported COPD adherence in a clinical setting, the Lung Health Study (LHS) [19]provided an opportunity to examine long-term, objectively measured adherence to inhaled COPD therapy (ipratropium bromide or placebo) in almost 4,000 participants in a clinical trial. The LHS was a double-blind, multicenter, randomized, and controlled trial of smoking intervention and bronchodilator therapy as early interventions in COPD. Satisfactory or better adherence was reported by nearly 70% of participants at the 4-month follow-up visit, but declined to ~60% over the next 18 months. Adherence classified by canister weight was satisfactory or better in 72% of participants who returned all canisters at 1 year, and in 70% of the participants who returned all canisters at the 2-year follow-up. Nevertheless, self-reporting confirmed by canister weight classified only 48% of participants at 1 year as showing satisfactory or better adherence. Multiple logistic regression analysis found that adherence was better in participants who were married, older, White and had more severe airway obstruction.

   An ancillary adherence study within the LHS, which used electronic medication monitors, found that canister weight data significantly overestimated adherence: only 15% of the participants actually used the inhaler 2.5 or more times per day on average (the prescription was three uses per day). In addition, the study found that around 14% of participants appeared to be "dumping" medication prior to clinic visits (i.e. actuating their inhalers more than 100 times in a 3-h interval), in order to appear adherent. Analysis of electronic monitoring data collected over a period of 2 years from the LHS indicated that adherence to the prescribed medication regimen was at its best immediately following each clinic visit and gradually declined during the interval between visits.

Moreover, the level of adherence after each visit was lower for each successive follow-up, going from a mean daily adherence of 1.6±0.85 uses per day at 4 months to 1.16±0.95 uses per day by 24 months. These trends could not be observed from either self-reporting or canister weights at follow-up visits.

Long-term patient adherence with ICS was also measured in the Detection, Intervention, and Monitoring Program for Asthma and COPD (DIMCA) study [20]. This was a prospective, randomized, placebo-controlled study of treatment with fluticasone propionate in patients with asthma or early COPD. Forty-eight adults with early signs of COPD were enrolled in the trial. By taking measurements of medication use by Counting the returned Flovent Rotadisks), the mean overall adherence for these patients was found to be 72% (range, 7–102%), and this level was maintained throughout the trial. This estimated adherence level is, however, likely to be a significant overstimulation of average patient adherence, as this method of measuring is vulnerable to dumping [19] and cannot be calculated for non-adherent patients who fail to return all their medication at clinic visits [19]. Neither perceived effectiveness nor side-effects were related to adherence, although patient motivation (i.e. the willingness of patients to use the trial drug in daily practice) was found to be significantly related to adherence during the trial [21].

Blais [21] examined trends in patient persistence with COPD treatments in a cohort of 3,768 physician-diagnosed, elderly Canadian COPD patients selected between 1990–1996. During this period, the proportion of patients who collected at least one prescription for ICS increased from 42.2% in 1990 to 53.1% in 1995. Patients that were most likely to be started on ICS were those with more severe disease or those treated by a Respirologist. However, the proportion of patients who persisted with ICS for <1 year increased from 47.6% in 1990 to 67.0% in 1995. A similar cohort study performed in the USA in patients aged ≥65 years with moderate or severe COPD, found that 60% were poorly adherent with ICS therapy [22]; notably, better adherence was associated with a 20% lower frequency of hospital visits in a year. A link between compliance and outcomes was also found in a study of 93 patients on home nebulizer therapy, in which 46 of 82 patients were found to be poorly compliant, with poor compliance being associated with impaired quality of life [23].

In general, research suggests that the lengthier and more complicated the treatment regimen, the greater the likelihood of non-adherence [24]. This observation has led to the expectation that simpler, once-daily therapies will inevitably lead to improved patient adherence. Retrospective studies based on review of pharmacy claims data do suggest some adherence advantage for once-daily therapies compared with therapies using twice-daily dosing [25]. However, while once-daily dosing may improve erratic non-adherence by simplifying daily regimens and decreasing the number of doses missed due to simple forgetfulness, this is unlikely to promote adherence in the rationally non-adherent patient (sometimes called deliberate or "intelligent" non-adherence) who is intentionally decreasing or discontinuing therapy because they believe that they no longer need to use it or because they are concerned about side-effects [25].

Aside from adherence considerations, once-daily therapy appears to be preferred by most patients. Enable examined patient preference in COPD therapy and found that 61% of patients expressed a preference for once-daily treatment, 12% preferred twice-daily treatment and 27% expressed no preference. While selecting therapies based on patient preference may not necessarily lead to improved adherence, it might reduce the burden of therapy and enhance a patient's quality of life.

Other characteristics of treatment regimens can also impair or enhance adherence. For example, adherence with inhaler therapies may be compromised by poor device technique (eg: MDI and peak flow monitoring) [26]. Actual or perceived side-effects or risks of treatment can also reduce adherence levels. Patients concerned by real or imagined risks of ICS may deliberately reduce dosing in an effort to decrease exposure [27]. The patient's understanding and beliefs about therapy can also influence adherence with treatment [28]. Asthma and COPD patients alike frequently misunderstand the purpose of prescribed therapy and confuse the side-effects of ICS with those of anabolic steroids [29]. The most frequent reason that patients cite for not using their therapy is a belief that they no longer need it or that it does not do any good [30]. Unwitting non-adherence, often due to the patient misunderstanding or forgetting the clinician's instructions, may occur even when physicians provide appropriate information and education during the consultation. Studies of how well patients retain health information suggest that immediately after an office visit, they recall <50% of the information conveyed by the physician [31].

In addition to a general limitation to their ability to recall information, patients with lower health literacy (sometimes called "functional literacy") may inherently have more difficulty recalling and comprehending medical information. Such individuals may be at particular risk of non-adherence, caused by misunderstanding of the therapeutic regimen. A recent study of COPD patients with poor health literacy showed that physicians very rarely checked patient recall of new concepts or explained them more clearly [32].

Reviews related to diet

The nutritional status of patients with COPD has been considered an important factor that influences the prognosis of the disease [33]. Approximately 20–40% of COPD outpatients have been reported as underweight or malnourished [34]. Body composition is reported to be one of the main determinants of functional disability of COPD

patients independent of respiratory functions[35]. Weight loss and depletion of fat-free mass (FFM) may be observed in stable COPD patients, irrespective of the degree of airflow limitation and they are reported to contribute to morbidity, disability, and handicap[36]. Increased muscle protein break-down is a key feature in muscle wasting. This process of cachexia can be considered the result of interplay of systemic factors, including systemic inflammation, oxidative stress, and growth factors that may synergize with local factors leading to protein imbalance[37]. It is important to recognize that muscle mass may be reduced in COPD patients despite a normal BMI[38]. Fat-free mass index (FFMI) has been reported to provide information beyond that provided by body mass index (BMI)[39,40]. It has been shown that fat-free mass (FFM) depletion is a better predictor of mortality than BMI alone in COPD patients[41]. A recent study on 564 moderate to severe COPD patients in the Netherlands showed that disturbances in body composition were associated with dramatic differences in macro- and micronutrient intake[42].

Reviews related to exercise

Physiological changes are observed following a structured exercise training programme in patients with COPD, without changes in resting lung function Exercise training is the cornerstone of a comprehensive pulmonary rehabilitation programme in patients with COPD.Mostco-morbidities in patients referred for pulmonary rehabilitation remain undiagnosed and untreated. After careful screening, it is safe for COPD patients with co morbidities to obtain significant and clinically relevant improvements in functional exercise capacity and health status after an exercise-based pulmonary rehabilitation programme.

In patients with chronic obstructive pulmonary disease (COPD), disease severity and prognosis are not only determined by lung function impairment, but are also related to extra-pulmonary consequences of COPD such as muscle weakness and exercise intolerance [42,43,44]. The exercise training component of pulmonary rehabilitation (PR) has been shown to be very effective in improving exercise capacity, dyspnoea and quality of life [45]. As a result, for patients with moderate to very severe COPD and breathlessness (MRC dyspnoea score >2) exercise training is recommended as part of PR in national and international guidelines[46]. Another extra-pulmonary feature of COPD is the decline in daily physical activity (PA)[46]. Only a few trials have investigated the effect of exercise training on changes in daily physical activity [47] These studies showed contradictory results, ranging from significant improvements in PA [47] after exercise training, to small or moderate effects [49,50]and no effects at all [51]. Overall, current data indicate that exercise training results in a significant but small effect on PA and that larger randomized controlled trials (RCT's) are needed in this area [52].

A differentiation should be made in the improvement of exercise capacity on the one hand and improvement of daily physical activity on the other. Improvement in exercise capacity fulfils the short-term goal of reducing breathlessness and fatigue , improving muscle strength and thus lowers the barriers to be physically more active [. Regular physical activity in COPD patients has important long-term health-related benefits, like a lower risk of COPD related hospital admissions and decreased mortality [53]. Furthermore, low physical activity has been associated with systemic inflammation, cardiac dysfunction and lung function decline [54].

All abovementioned studies were performed in a clinical or rehabilitation setting in COPD patients in more advanced GOLD stages . However, patients with moderate COPD also have impairments in exercise capacity, respiratory muscle function, limb muscle force and quality of life [55,56]. In addition, the level of physical activity is already decreased in patients with moderate COPD compared to healthy control subjects [57,58,59]. Scant information is available on the effects of community-based exercise training programmes in general and even less about their effect on daily activity [59]. Exercise training programmes in patients with moderate to severe COPD, when incorporated in (self)-management or integrated disease management programmes in primary care, result in improvements in health-related quality of life, breathlessness, exercise capacity, muscle strength, daily physical activity, reduced hospital admissions and hospital days per person [60,61]. Recruitment and assessment was done in the respiratory department of general hospitals [61] or the intervention was multifaceted (i.e. involved more than exercise therapy alone) [62]. To our knowledge hardly any data are available on the efficacy of physical exercise training programmes in patients with mild to moderate COPD that are recruited and treated solely in primary care.

Summary

This chapter covered literature related to studies on chronic obstructive pulmonary disease conducted in India and abroad. Review of literature helped the investigator to proceed with the study scientifically.

III. Methodology

Methodology in research is described as the steps, procedures and strategies for gathering and analyzing data in a research investigation. It involves the systematic procedures by which the researchers start from the initial identification of the problem to its final conclusions.

This chapter deals with research approach, research design, variables, scheme and plan for data schematic represent setting, population sampling and sampling technique, tool instruments, content validity of the tool, pilot study data collection process and plan for data analysis.

Research approach

The research approach involves the description of the plan to investigate the phenomenon under the study. The research approach adopted for the study is quantitative approach.

Research design

Research design incorporates the most important methodological decisions that researchers made. Research design is the overall plan for addressing the research question including specifications for enhancing the study's integrity. The research study design selected for this study was descriptive survey design.

The research design adopted for the present study was Quasi experimental, pretest, posttest design with control group.
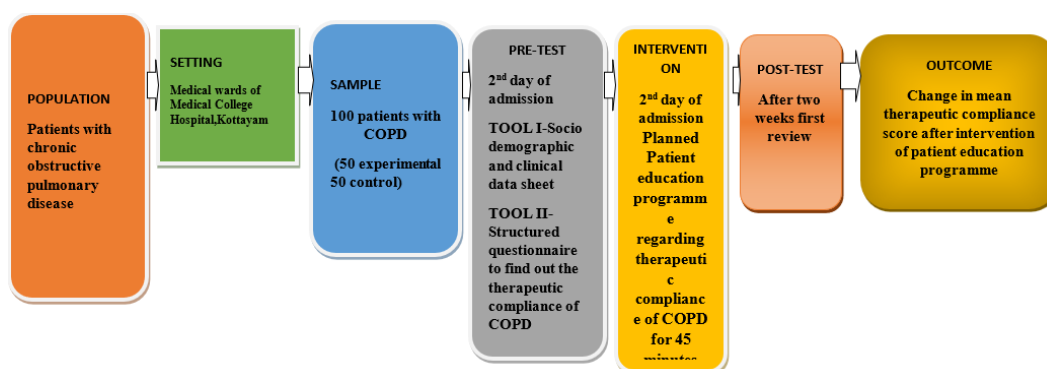
G1   :   O1   X   O2
G2   :   O1   O2
G1=Experimental Group (wards 1, 3, 16)
O1=Pretest (second day of admission)
X=Intervention (Patient education programme)
O2=Posttest (15 day of first review)
G2=control group (wards 2, 4, 17)

Variables
- Dependent variable   : Therapeutic compliance of patient with COPD
- Independent variable   : Patient Education Programme

Setting

Medical Wards 1, 2, 16 (male medical wards) 3, 4, 17 (female medical wards) and outpatient department of medical College Hospital, Kottayam

Population

Population can be defined as total number of units from which data can be potentially be collected. In this study population is patient with COPD admitted in medical wards of Medical college Hospital Kottayam

Sample and sampling Technique

Sample is a selected portion of the defined population. Sampling is a process of selecting the subjects who are representative of the population being studied

Sample

In the present study samples were all clinically diagnosed COPD patients admitted in Medical wards of Medical College Hospital, Kottayam from 01-01-2022 to 12-02-2022

Sample size

In this study 50 patients were selected for each interventional and control group from male and female medical wards and outpatient department of Medical College Hospital Kottayam

Sampling
Consecutive sampling

Sample Size
$N=2(Z\alpha + Z\beta)2\overline{p}\,(1-\overline{p})$
$N= \Delta 2$
Where $Z\alpha=1.96$ for $\infty=0.05$
$Z\beta=0.84$ for $1-\beta$ (power)$=0.8$
PC + PT
PC=prevalence rate in group 1
PT=prevalence rate in group 2
   Sample size of the study =50 (50 in each experimental and control group). (Sample size is calculated from a study of compliance in chronic obstructive pulmonary disease patients attending pulmonary Medicine OPD in a tertiary care hospital Haryana 2014). Proportion of drug compliance in control group (pc)=28Proportion of drug compliance in study group (PT) =38. Difference in proportion of drug compliance between groups ẋ=0.19
$n= (Z\alpha + Z\beta)\underline{^2P_1\,(100-P1)\,+P_2\,(100-P_2)}$
(P_2-P_1)
PC=28, PT=38
$n =\underline{28(100-28)\,+38(100-38)}$
$(38-28)^2$
n =43
50 samples were selected for each experimental and control group

Inclusion criteria
   Patients who are willing to participate in the study and present at the time of data collection Patient who can understand Malayalam.

Exclusion criteria
Patients with Chronic Obstructive Pulmonary Disease who are seriously ill with exacerbation.

Sampling Procedure
Consecutive cases were selected for the study

Development and description of tool and technique
Development / selection of the tool
   Tool is a device or instrument utilized to collect data. Technique is the method by which data is collected. Specified tool were used to collect the therapeutic compliance of COPD.

Description of the tool
Section 1
   Structured interview schedule to assess the socio demographic and clinical data among patients admitted with COPD in medical wards. The tool consists of 2 sections.
Part1: Socio demographic data. It includes age, sex, religion, type of family, education, occupation, financial status.
Part 2: Clinical data. It includes co-morbidities, duration of disease, treatment of COPD, habits of smoking.

Section-2
Technique; structured interview schedule-structured questionnaire to assess therapeutic compliance of COPD

Outcome Measurement
   The study is intended to understand the effectiveness of a teaching program in improving therapeutic compliance of patients with COPD. This will helps in designing better patient teaching programs to improve the prognosis of COPD patients.

Data collection process
   Data was collected only after obtaining permission from concerned authority and informed consent from the participants. Consecutive cases were selected from the medical wards. Then the investigator to reassessed the therapeutic compliance of both group by administering the specific tool. Then a patient education programme was conducted for the experimental group, on the second day of admission. Post-test done two weeks later with

same tool. After discharged the patient first and second week participant were called over by phone to make sure that stick on the compliance regimen.

Data analysis

The significance of difference between the control and experimental group in relation to the effect of structured teaching programme on therapeutic compliance of COPD. The data analyzed using mean, standard deviation, independent t-test, tables and figures

Summary

This chapter described the scientific pathway through which the investigator proceeded for the conduct of the study. A detailed description of research design, duration of study, sample and sampling technique, tool and technique, pilot study, data collection process and plan for analysis is given in this chapter. The data analyzed using mean, standard deviation, student t-test.

IV.   Analysis And Interpretation

Data analysis is the process of summarization, evaluation and interpretation of the information collected in such a way that they provide answers to the research problem. Interpretation is the process of making sense of results and examining the simplification of findings with in a broader context.

The present study aimed to assess the effectiveness of a patient education programme on therapeutic compliance of patients with Chronic Obstructive Pulmonary Disease admitted in the medical wards of Medical College Hospital, Thiruvananthapuram.

The objective of the study was
1. To find out the effectiveness of a patient education programme on therapeutic compliance among patients with Chronic Obstructive Pulmonary Disease admitted in the medical wards of Medical College Hospital, Kottayam.

The collected data were analyzed according to the above objective. The data obtained were analyzed by descriptive and inferential statistics.

The findings of the study are represented below under the following headings.
Section 1: Analysis of socio- demographic characteristics of the participants.
Section 2: Analysis of Clinical data of the participants.
Section 3: Analysis of effect of a patient education programme on therapeutic compliance of patients with COPD.

Section 1
Analysis of socio- demographic characteristics of participants

Figure. 3
Distribution of participants according to Age in years
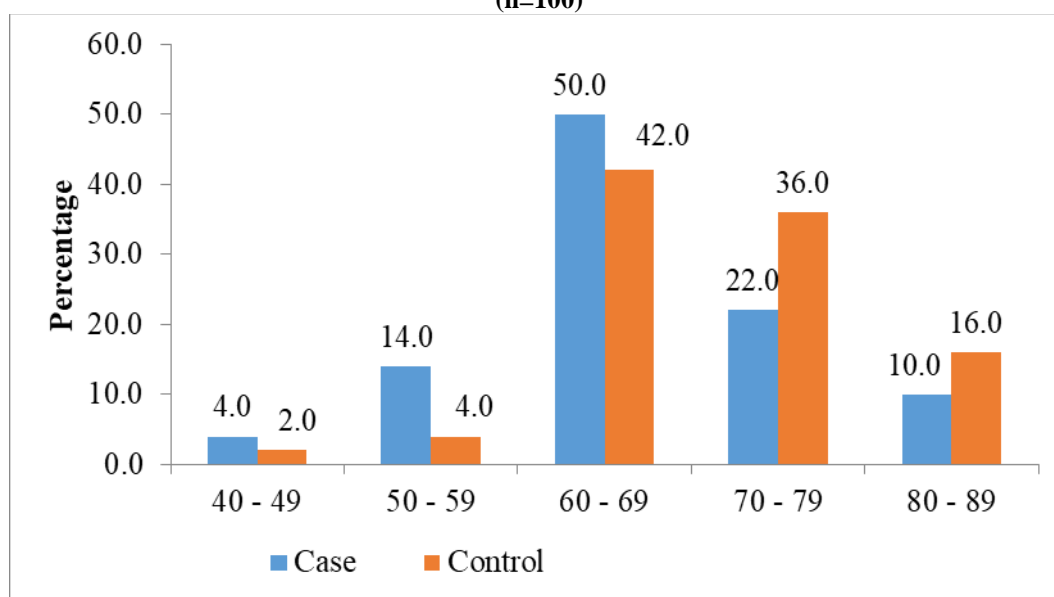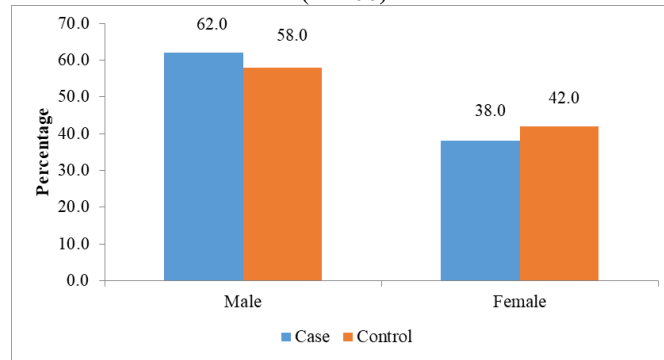**(n=100)**

Figure 3 illustrate 50.0% of the participants in the experimental group and 42.0% of the participants in the control group were in the age group of 60-69 years.22.0% of the participants in the experimental group and 36.0% of the participants in the control group were in the age group of 70-79 years.

Figure.4
Distribution of participants based on gender
(n=100)

The above figure shows that in the experimental group 62.0% of the participants were males and 38.0% were females. In the control group 58.0% of participants were males and 42.0% were females.

Figure.5
Distribution of participants based on religion
(n=100)
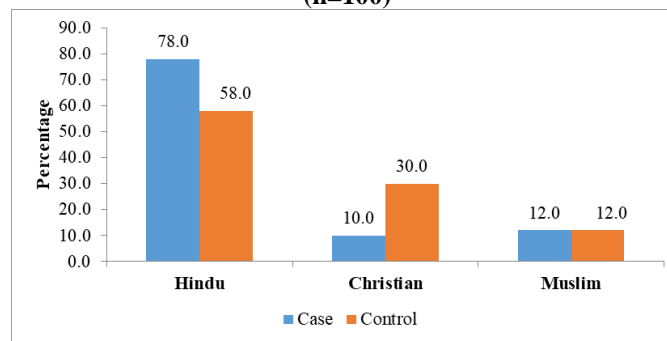
Figure 5 shows that, in the experimental group 78.0% of participants were Hindus and 12.0% of the participants were Muslims. In the control group 58.0% participants were Hindus and 30.0% participants were Christians.

Figure.5
Distribution of Participants based on type of family
**(n=100)**
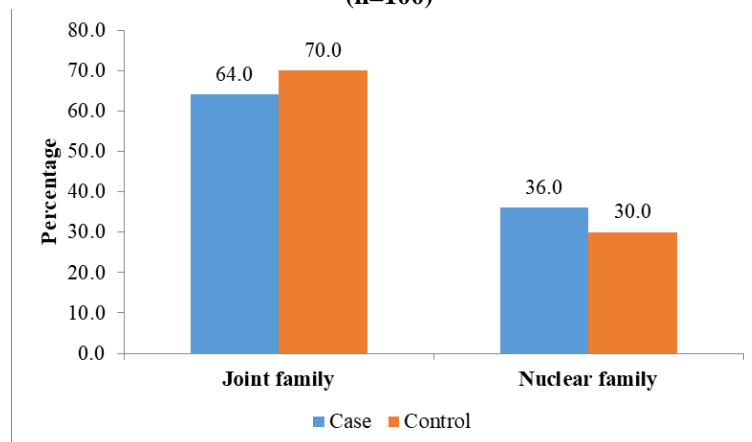
The figure shows that, 64.0% of participants in the experimental group and 70.0% participants in the control group belong to joint family: 36.0% of participants in the experimental group and 30.0% participants in the control group belong to nuclear family.

Figure.6
Distribution of participants based on education
(n=100)
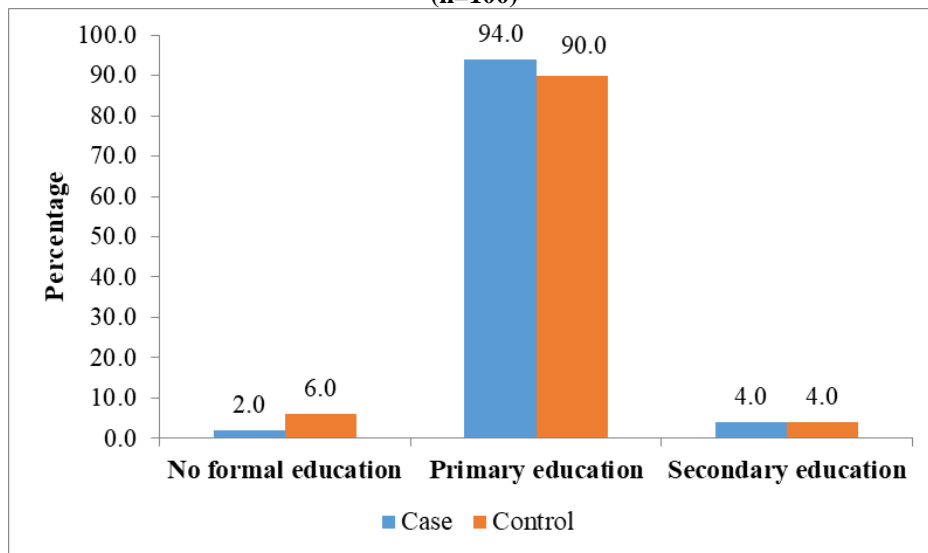
The figure shows that, 94.0% of participants in the experimental group and 90% of the participants in the control group had education up to primary level.

Figure.7
Distribution of participants based on occupation
(n=100)
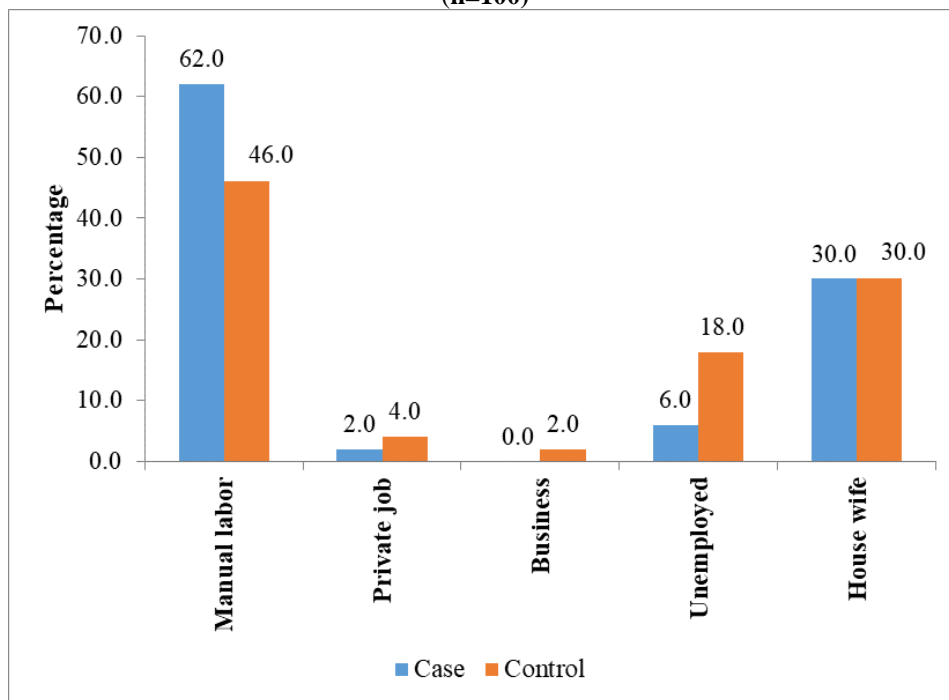
The figure shows that, in the experimental group 62.0% of n participants were manual laborers and 2.0% were private employee and another 6.0% were unemployed. In the control group 46.0% participants were manual laborers**.**

Figure.8
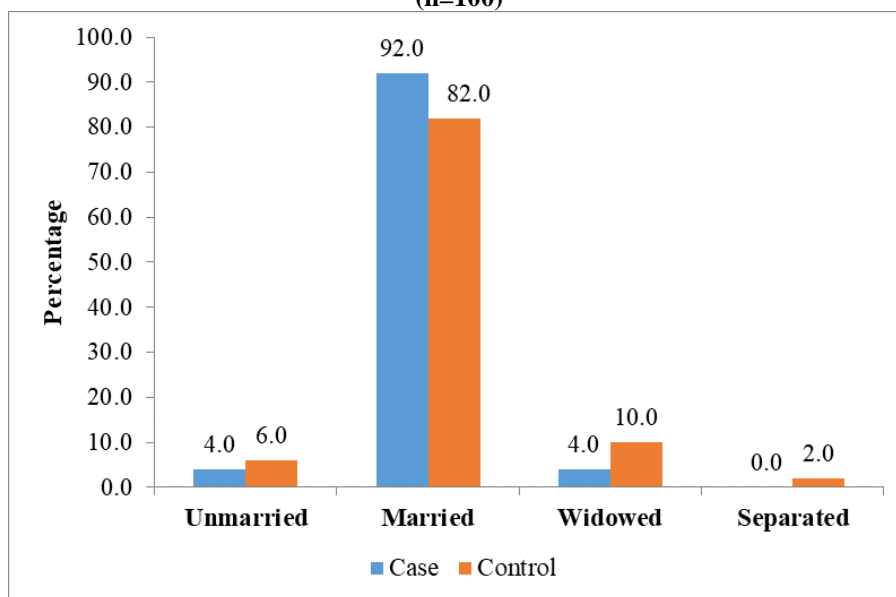**Distribution of participants based on marital status**
(n=100)

Figure shows that, in the experimental group 92.0% of participants were married and in the control group 82.0% participants were married.

Table.2
Distribution of participants based on income
(n=100)

Monthly Income in Rs.	Experimental group		Control group		χ^2	df	p
	frequency	%	frequency	%			
< 5000	47	94.0%	49	98.0%			
≥5000	3	6.0%	1	2.0%	1.042	1	0.307
Total	50	100.0%	50	100.0%			

Table 2 shows that, in the experimental group 94.0% of participants and in the control group 98.0% participants had a monthly income of less than Rs. 5,000.
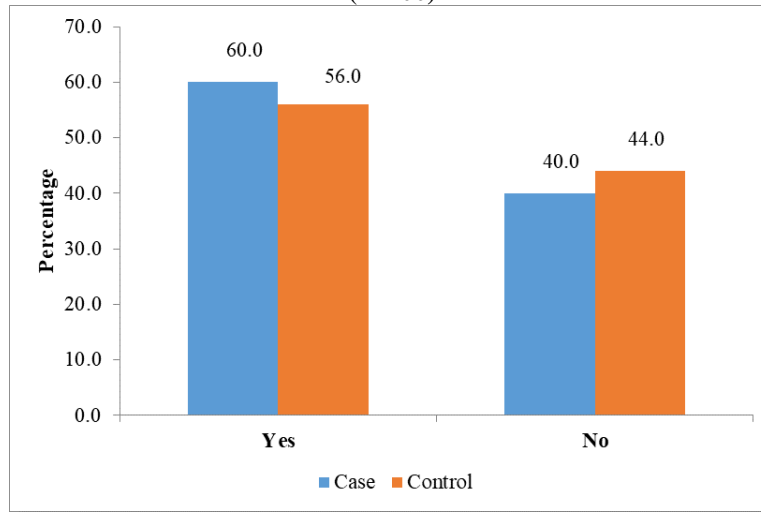
Section -2
Clinical Data

Figure 9
Distribution of participants based on practice of alternative system of medicine
(n=100)
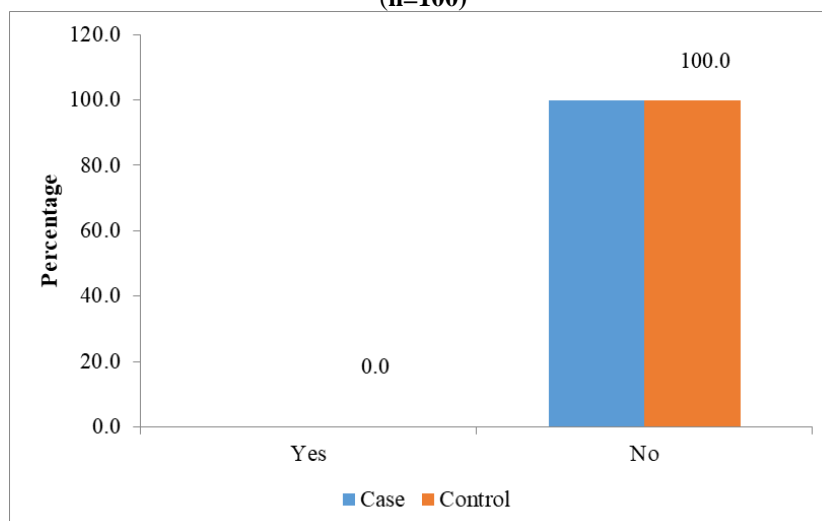
From the figure it is evident that, participants in both groups were not taking any form of alternative therapy.

Figure.10
Distribution of participants based on history of smoking habits
(n=100)

The figure shows that, 60.0% of the participants in the experimental group and 56.0% participants in the control group still having smoking habits. And 60.0% of the participants in the experimental group and 56.0% participants in the control group have no smoking habits.

Figure.11
Distribution of participants based on co-morbidity
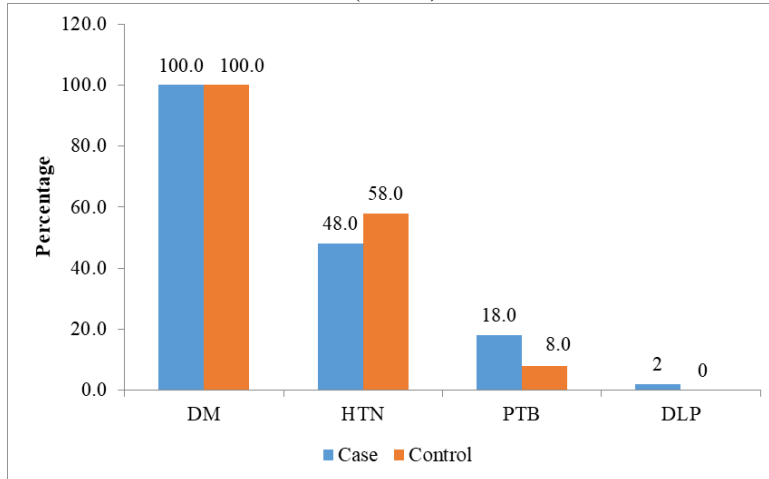**(n=100)**

Figure shows that, in the experimental and control group 100% of the participants had diabetes mellitus and 48.0% in the experimental group and 58.0% in the control group had hypertension. In the experimental group 18.0% participants and in control group 8.0% participants had pulmonary tuberculosis.

Table 3
Distribution of participants based on duration of illness
(n=100)

Duration of illness in years	Experimental		Control		X^2	df	p
	N	Percent	N	Percent			
<=5	35	70.0%	21	42%.			
6 - 10	11	22.0%	22	44%.	7.98	3	0.01**
>10	4	8.0%	7	14%.			

**Significant at .01 level

From table 3 it is evident that, majority (70.0%) of the participants in the experimental group had a duration of illness of less than 5 years and majority (44.0%) of the participants in the control group had a duration of illness of 6 - 10 years.

Figure.12
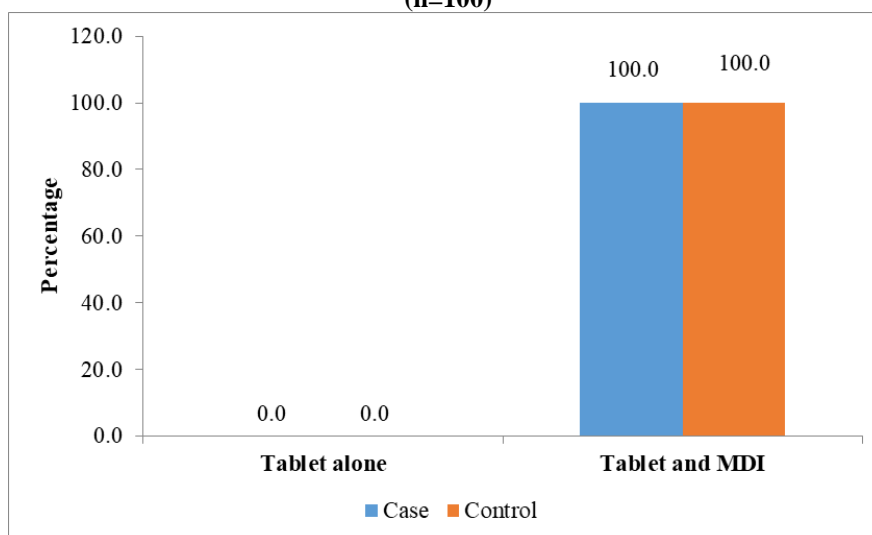**Distribution of participants based on treatment of COPD**
(n=100)

Figure 12 shows that, in both experimental andcontrol group 100% of participants were using tablet and MDI.

Section 3

Table. 4
Comparison of score of drug compliance between experimental and control group
(n=100)

Group	N	Mean score of drug compliance	SD	t	P
Experimental group	50	4.9	1	8.38	0.01**
Control group	50	1.6	1.3		

**Significant at .01 level

From the above table it is evident that average difference in pretest posttest drug compliance score among experimental and control group is 4.9±1and 1.6±1.3 respectively. The observed difference is statistically significant (p<0.01)

Table .5
Comparison of exercise score between experimental and control group
(n=100)

Group	N	Pretest posttest difference in exercise score (Mean)	SD	t	p
Experimental group	50	3.3	1.2	6.61	0.01**
Control group	50	1.3	1.2		

**Significant at .01 level

From the above table it is evident that average difference in pretest posttest exercise score among experimental and control group is 3.3±1.2and 1.3±1.2respectively. The observed difference is statistically significant (p<0.01)

Table. 6
Comparison of diet score between experimental and control group
(n=100)

Group	N	Pretest posttest difference in diet score (Mean)	SD	t	p
Experimental Group	50	3.3	.8	7.52	0.01**
Control group	50	1.2	1.2		

**Significant at .01 level

From the above table it is evident that average difference in pretest posttest diet score among experimental and control group is 3.3±0.8and 1.2±1.2respectively. The observed difference is statistically significant (p<0.01)

Table .7
Comparison of follow-up score between experimental and control group
(n=100)

Group	N	Pretest posttest difference in follow-up score (Mean)	SD	t	p
Experimental Group	50	5.2	1	8.35	0.01**
Control group	50	1.6	1.4		

**Significant at .01 level

From the above table it is evident that average difference in pretest posttest follow-up score among experimental and control group is 5.2±1and 1.6±1.4respectively. The observed difference is statistically significant (p<0.01)

Table. 8
Effect of a patient education programme on therapeutic compliance
(n=100)

Group	N	Therapeutic compliance score (Mean)	SD	t	P
Experimental group	50	4.1	0.35	5.82	0.01**
Control group	50	1.3	0.47		

**Significant at .01 level

From the above table it is evident that the mean difference in the pretest posttest therapeutic compliance score among experimental and control group was 4.1±0.35 and 1.3±0.47 respectively. The observed difference was statistically significant (p<0.01)

V. Results
This chapter gives a brief account of the present study including the objectives and study results. The present study aimed at assessing the effectiveness of a patient education programme on therapeutic compliance of patient with chronic obstructive pulmonary disease:

Objectives
To find out the effectiveness of a patient education programme on therapeutic compliance among patients admitted in medical wards with chronic obstructive pulmonary disease.

Hypothesis (H1)
There is difference in therapeutic compliance between experimental and control group.

Results
The major findings of the study are presented under the following sections:
Section I: Socio demographic data
Section II   : Clinical data
Section III   : Effect of a patient education programme

Section I - Socio demographic data
The present study carried out among 50 participants each in the control and in the experimental group 14.0% of the study group and 4.0% of the control group belong to the age group <60 years. 50.0% of the experimental group and 42.0% of the control group belonged to the age group >60 years. No statistically significant difference was observed between those groups (p = 0.024).
In the present study38.0% of participant from the experimental group and 42.0% in the control group were females and 62.0% of participant from the experimental group and 58.0% in the control group were males. Both groups are comparable (p = 0.683).
From the study findings it is evident that 78.0% of participant from the experimental group were Hindus and 30.0% in the control group were Christian and 12.0% in both experimental and control group were Muslims. Both group are comparable (p = 0.039).
Among the experimental group 64.0% and among the control group70.0% werefrom joint family and 36.0% of participants from the experimental group and 30.0% in the control group from nuclear family.

Regarding the educational status 2.0% in the experimental group and 6.0% of control group had no formal education, 94.0% experimental group and 90.0% of control group had primary school education and 4.0% in the experimentaland control group acquired secondary education.

In the present study 62.0% in the experimental group 46.0% in the control group were manual laborers 2.0% of participant in study group and 4.0% in the control group were working private sector. Among the group6.0% in the experimental group and 18.0% in the control group were unemployed. 30.0% of the participant in experimental group and 30.0% of control group were house wives.

From the findings it is evident that 4.0% in the experimental group and 6.0% in the control group were unmarried. 92.0% of the experimental group and 82.0% in the control group were married. 4.0% of the patient in study group and 10.0% in the control group were widowed.

Majority of the participants 94.0% in the experimental group had a monthly income of Rs. <5000 and2.0 % in the control group had amonthly income of >5000. Both groups are comparable (p= 0.110).

Section II - Clinical Data
➤ Duration of illness:70.0% of the participants in the experimental group and 42.0% of the participants in the control group had a duration of less than 5 years. 22.0% of the participants in the experimental group and 44.0% of control group had a duration of 6 -10 years.8.0% of the experimental group and 14.0% of the control group participants had a duration of more than 10 years. Both group are comparable (p = 0.018).
➤ Regarding co morbidities, all the participants in both group were diabetic. 0.48% in the experimental group and 58.0% in the control group had Hypertension. 18.0% in the experimental group and 8.0% in the control group had Pulmonary Tuberculosis.
➤ All the patients in both groups were on tablets and MDI as part of COPD treatment.
➤ All the participants in both groups were not using any form of alternative therapy for the treatment of COPD.
➤ In the present study 60.0% of the experimental group and 56.0% of the control group had history of smoking. 40.0% of the experimental group and 44.0% of the control group had history of smoking.

Section III - Effect of a patient education programme
Comparison of change in post-test score regarding medicine, inhaler use, between experimental and control group.

Compliance to medication and inhaler use in experimental group mean is posttest compliance score was 5.0 and control group posttest compliance score was 2.0. Independent T test is calculated. (p = <0.01). Hence there was significant difference after the intervention of compliance to medication and inhaler use.

In the present study found out that posttest compliance to exercise in experimental group mean was 3.5 and control group posttest compliance score was 1.0 independent test is calculated (p = <0.001). Hence there was a significant difference after the patient education programme of compliance to exercises.

In the present study found out that posttest compliance to diet score in experimental group mean was 3.0 and control group median was 1.0 independent T test is calculated (p = <0.001). Hence there was a significant different after the patient education programme of compliance to diet.

In the present study found out that posttest compliance to following score in the experimental group median was 5.0 and control group median was 2.0. Independent T test is calculated (p=>0.001). Hence there was a significant difference after the patient education programme of compliance to follow up.

The present study found out that posttest mean score of therapeutic compliance between experimental group and control group is 4.1 and control group 1.3 independent t-test is calculated p = (<0.001). Hence there was significant different after the intervention of patient education programme.

VI. Discussion, Summary And Conclusion
This chapter gives a brief account of the present study including the discussion of the findings, summary, conclusion, suggestions for future research, limitations and nursing implications. Recommendations are formulated on the basis of findings interpreted from the present study. The findings of the study are discussed with reference to the set objectives.

Discussion
Patient compliance to treatment in chronic obstructive pulmonary disease (COPD) is essential to optimize disease management. As with other chronic diseases, poor compliance is common and results in increased rates of morbidity, healthcare expenditures, hospitalizations and possibly mortality, as well as unnecessary escalation of therapy and reduced quality of life. The present study is intended to find out effectiveness of a patient education programme on therapeutic compliance of patients admitted with COPD in medical wards of medical college hospital Kottayam. The present study was intended to find out the effectiveness

of a patient education programme on therapeutic compliance regarding medication and inhaler use, diet, exercises and follow-up, among patient admitted in medical wards of medical college hospital Kottayam.

A study conducted by Mehuys E, Boussery K, in 2010[63] to assess the effectiveness of a medication adherence for patient with COPD .A randomized control trail study. The study found that inhalation score [mean estimated difference 13.5%; 95% confidence interval (CI), 10.8-16.1; P < 0.0001] and medication adherence (8.51%; 95% CI, 4.63-12.4; P < 0.0001) were significantly higher in the intervention group compared with the control group. In the intervention group, a significantly lower hospitalization rate was observed (9 vs. 35; rate ratio, 0.28; 95% CI, 0.12-0.64; P = 0.003). No other significant between-group differences were observed.

Another study by Santosh Nadig, Asst. Prof. R. Rajeshwari(2016)[64] to assess the Effectiveness of Structured Teaching Programme on Knowledge and Techniques Regarding Metered Dose Inhalers (MDI) among Bronchial Asthma Patients in Selected Hospitals of Mangalore Taluk. The study found that't' value computed between mean pre-test and post-test knowledge score is statistically significant (t = 35.33, table value t = 1.67, p<0.05) and't' value computed between pre-test and post-test technique score is statistically significant(t=15.57 table value t = 1.67, p <0.05). this shows that there is significant difference between the mean pre-test and post-test knowledge score and mean pre-test and post-test score of bronchial asthma patients regarding MDI, it shows that Structured Teaching Programme (STP) was effective in increasing the knowledge and technique of bronchial asthma patients regarding MDI. Thus it showed that as the knowledge increased technique improved.

In this study found that the both experimental and control group 100% of participants were using tablet and MDI and compliance to medication and inhaler use that average difference in pretest posttest drug compliance score among experimental and control group is 4.9±1and 1.6±1.3 respectively. The observed difference is statistically significant (p<0.01). Since the patient education programme was effective in compliance to medication and inhaler use.

A study conducted by Cecily HSJ, Alotaibi[65] AA (2013)Effectiveness of Breathing Exercises on Pulmonary Function Parameters and Quality of Life of Patients with Chronic Obstructive Pulmonary Disease. The study found that After undergoing breathing exercises, in the experimental group the level of dyspnea was significantly reduced (P< 0.001) and there was significant improvement in the Quality Of Life (QOL) and pulmonary functional parameters such as FEV1 (Forced Expiratory Volume), FVC (Forced Vital Capacity), FEV1/ FVC ratio, and PEFR (Peak Expiratory Flow Rate) (P<0.001). However in the control group there were no significant changes in dyspnea, QOL and pulmonary function.

In the present study after patient education programmeaverage difference in pretest posttest exercise score among experimental and control group is 3.3±1.2 and 1.3±1.2 respectively. The observed difference is statistically significant (p<0.01).since the patient education programme was effective in compliance to exercises.

Another studyconducted by Frode Gallefoss (2004)[66]The effects of patient education in COPD in a 1-year follow-up randomised, controlled trial the study found that Patient education reduced the need for General Practioner visits with 85% (from 3.4 to 0.5, *P*<0.001) and kept a greater proportion independent of their General Practioner during the 12-month follow-up, compared with no education (73% versus 15%, respectively). Patient education reduced the need for reliever medication from defined daily dosages, and improved patient satisfaction with overall handling of their disease at General Practioner. The control and intervention groups induced mean total costs of per patient, respectively.

In the present study found that , 94.0% of participants in the experimental group and 90% of the participants in the control group had education up to primary level. The average difference in pretest posttest follow-up score among experimental and control group is 5.2±1and 1.6±1.4respectively. The observed difference is statistically significant (p<0.01).since the patient education programme was effective in compliance to follow-up.

A study was conducted by Merce Planas and Alvarez.P.A (2005)**[67]** Nutritional support and quality of life in stable chronic obstructive pulmonary disease (COPD) patients. The study is a Prospective, randomized and multi-center study. Stable COPD patients with a body mass index22, a fat-free mass index ≤16, and/or a recent involuntary weight loss (5% during last month, or 10% during the last 3 months) were studied. At baseline both groups of patients were comparable. All patients needed oral nutritional supplements to achieve total daily defined energy intake. After 12 weeks of follow-up, patients in both groups significantly increased energy intake. Patients in group A increased body weight, triceps skin fold thickness and body fat mass, and decreased body fat-free mass index. In this group a marked increase in airflow limitation was observed. A tendency to increase body weight and handgrip strength, and to decrease airflow limitation was observed in patients from group B. Furthermore, patients in the latter group showed a significant improvement in the feeling of control over the disease and a tendency to better the other criteria in a quality of life scale.

In the present study after patient education programme that average difference in pretest posttest diet score among experimental and control group is 3.3±0.8and 1.2±1.2respectively. The observed difference is statistically significant (p<0.01) since the patient education programme was effective in compliance to diet.

Summary

COPD is a chronic disease in which effective management requires long-term compliance to pharmaco therapies but the level of adhesion to the prescribed medications is very low and this has a negative influence on outcomes. There are several approaches to detect non-adherence, such as pharmacy refill methods, electronic monitoring, and self-report measures, but they are all burdened with important limitations. Medication compliance diet compliance , exercises ,follow up in COPD is multifactorial and is affected by patients (health beliefs, cognitive abilities, self-efficacy, co morbidities, psychological profile, conscientiousness), physicians (method of administration, dosing regimen, polypharmacy, side effects), and society (patient-prescriber relationship, social support, access to medication, device training, follow-up, diet exercises). Patient-health care professional communication especially that between patient and physician or pharmacist, nurse, is central to optimizing patient compliance. However, the most realistic approach is to keep in mind that improve therapeutic compliance is always possible, indeed, probable.

The present study is intended to identify the effectiveness of a patient education programme on therapeutic compliance of patients with Chronic Obstructive Pulmonary Disease admitted in Medical wards of Medical College Hospital, Kottayam.

A conceptual framework presents logically constructed concepts to provide general explanation of the relationship between the concepts of the research study without using a single existing theory. It helps to understand the study concepts and their relationship with each other to provide foundation for theory testing or theory developmental research.

This study adopted health promotion model theory by Nola J Pender. Pender's health promotion model theory was first published in 1982 and later revised in 1996 and 2002 .It is used for nursing research ,education and practice .Research has been conducted on the model since its inception .250 article have been published in English language that use or apply Pender`s HPM. Directed at improving an overall sense of wellbeing, Pender's model consider the holistic needs of each individual and their relationship with the environment to predict and explain health promoting behaviors .The purpose of the model is to assist nurses in understanding factors that affect health promoting behaviors.

In contrast to COPD, the evidence base for compliance to therapy in chronic obstructive pulmonary disease patients is very thin. The limited data available suggest that, as in other chronic diseases, compliance is often poor, and this has a negative influence on outcomes. Poor compliance in Chronic Obstructive Pulmonary Disease patients seems to be influenced more by patient beliefs and coping behavior than by demographical factors or disease severity. Attributes of the treatment regimen itself (e.g. dosing frequency and perceived side-effects) also influence compliance rates, and better education of patients is likely to help. However, more research is needed to determine which strategies will be most effective, and although the patient's preference for a specific type of inhaler might be expected to affect compliance, such a link has not yet been demonstrated. In the present study samples were all clinically diagnosed COPD patients admitted in Medical wards of Medical College Hospital Kottayam from 01-01-2022 to 12-02-2022. In this study 50 patients were selected for each interventional and control group from male and female medical wards and outpatient department of Medical College Hospital, Kottayam.

Data was collected only after obtaining permission from concerned authority and informed consent from the participants .Consecutive cases were selected from the medical wards. Then the investigator assessed the therapeutic compliance of both group by administering the specific tool. Then a patient education programme was conducted for the experimental group, on the second day of admission. Posttest done after two weeks with same tool, when they come for the first review in the outpatient department. After dischargeof the patient first and second week participant were called over by phone to make sure that stick on the compliance regimen.

The significance of difference between the control and experimental group in relation to the effect of structured teaching programme on therapeutic compliance of COPD. The data was analyzed using mean, standard deviation, independent t-test, tables and figures.

Conclusion

Based on the finding of the study, following conclusions were drawn
❖Therapeutic compliance of patient with COPD in medication and inhaler use afterthe patient education programme has a significant improvement on drug compliance.
❖Therapeutic compliance of patient with COPD in exercises after the patient education programme has a significant improvement in compliance to exercises.
❖Therapeutic compliance of patient with COPD in diet compliance after the patient education programme helps to improve in compliance to exercises.
❖Therapeutic compliance of patient with COPD in follow up compliance s afterthe patient education programme has a statistically significant improvement in compliance to follow up.

❖That mean of posttest Therapeutic compliance score regarding patient education programme among study group is 1 and that of control group is 3. There is significant difference in therapeutic compliance score between Study and control group (p<0.01).The patient education programme has a significant effectiveness in therapeutic compliance of patient with COPD.

Nursing Implications

The present study has got implication in the field of nursing service, nursing administration, nursing education and nursing research.

Nursing practice

➢The nurses working in hospital, public health centers and community have to realize responsibility in providing information regarding importance of COPD patient's Therapeutic regimen such as diet exercises medication inhaler use and follow up.

➢The nurse can take the role of facilitator and educator and can educate the public regarding COPD therapeutic regimen

➢As a member of the health care team nurse play a crucial role in monitoring the patients following the therapeutic regimen

➢A self-instructional module or a video graphically recoded educational material can be used to educate patients regarding method of inhaler use exercises ,medication use

Nursing education

❖The nursing curriculum should incorporate activates like preparation of Booklets, handouts, pamphlets and self-teaching material about COPD therapeutic regimen

❖Education programme can be conducted for nursing students about COPD and its therapeutic management

❖Nursing educators can discuss the finding of the study while teaching about care of patient with COPD

❖The research report can be kept in educational institutions to be used by students for future reference

❖The nurse educator can provide in service education to the nursing personal to update their knowledge on COPD therapeutic regimen

Nursing administration

➢The nurse administrator can organize awareness programme in the hospital setting for the patients.

➢The findings of this study can be utilized by the nursing administrators for policy making and effective implementation.

➢Nurse administrators should take the initiative for organizing in service educational programme for health workers, staff nurses and significant others to improve their knowledge and skill.

➢The nurse administrators can create more awareness among the nurses for professional and personal benefits by doing continuing nursing education programmes and workshops on therapeutic regimen and compliance of COPD patients.

Nursing research

➢Nursing research can conduct studies related to therapeutic compliance of COPD patients medication ,inhaler use ,diet, follow-up ,exercises in separately

➢The study will be a motivation to beginners for conducting for similar study

➢The study will be a reference for research scholars

➢The abstract of the research can be published in nursing journal

Limitations

➢The sample size was restricted to 50 participants in experimental and control group

➢Participants were not randomized into the control and experimental group.

➢Duration of the study was only 6 weeks

➢Occurrence of technical errors were inevitable

Recommendations

In the light of the study following recommendations are made;

❖In the present study it is found that compliance of the participants regarding correct method of using inhalers long term use of medications and exercises, follow up and diet, are low. So IEC (Information, Education and Communication) should target to increase the compliance.

❖The health education booklet regarding COPD patient's diet, exercises, follow-up, medication and inhaler use and its importance should be published and circulated.

❖Training programme can be given to staff nurses and significant others on administration of inhalers, oxygen, exercises and diet menuand follow-up.

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