International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 8 Issue 1, January-February 2024 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

A Study to Evaluate the Effectiveness of Planned Teaching Programme on Management of Interstitial Lung Disease (ILD) in Terms of Quality of Life and Functional Capacity among Newly Diagnosed Interstitial Lung Disease (ILD) Patients Attending OPD of Vallabhbhai Patel Chest Institute University of Delhi

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ABSTRACT

Introduction: Interstitial lung diseases (ILDs) are a diverse group of lung diseases that are characterized by chronic inflammation and progressive fibrosis of the pulmonary interstitium. The interstitium is defined as the alveolar walls (including epithelial cells and capillaries), septae, and the perivascular, perilymphatic, and peribroncheolar connective tissues.

1. **Objectives:** To develop planned teaching program on management of Interstitial Lung Disease (ILD).
2. To assess and evaluate the quality of life among newly diagnosed ILD patients before and after the administration of planned teaching program on management of Interstitial Lung Disease (ILD).
3. To assess and evaluate the functional capacity in terms of 6MWD, protein value and Fat Free Mass Index (FFMI) among newly diagnosed Interstitial Lung Disease (ILD) patients before and after the administration of planned teaching program on management of Interstitial Lung Disease (ILD).
4. To determine relationship between quality of life and functional capacity after administration of planned teaching on management of interstitial lung disease (ILD).
5. To seek association between quality of life among newly diagnosed Interstitial Lung Disease (ILD) patients after administration of planned teaching program on management of Interstitial Lung Disease (ILD) with selected variables like

A. Age
B. Sex
C. Education
D. Medical illness
E. Occupation
F. Socio economic status

6. To seek association between functional capacity among newly diagnosed Interstitial Lung Disease (ILD) patients after administration of planned teaching program on management of Interstitial Lung Disease (ILD) with selected variables like

A. Age
B. Sex
C. Education
D. Medical illness

How to cite this paper: Mrs. Vung Ngaih Kim | Dr. (Mrs). Daisy Thomas | Mrs. Sarita Shokandha "A Study to Evaluate the Effectiveness of Planned Teaching Programme on Management of Interstitial Lung Disease (ILD) in Terms of Quality of Life and Functional Capacity among Newly Diagnosed Interstitial Lung Disease (ILD) Patients Attending OPD of Vallabhbhai Patel Chest Institute University of Delhi" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-8 | Issue-1, February 2024, pp.85-95, URL: www.ijtsrd.com/papers/ijtsrd61324.pdf

IJTSRD61324

E. Occupation'
F. Socio economic status

Methods: The research adopted a quasi experimental design with pre and post-test of the intervention of the patients availing the planned teaching management programme of ILD. Exit interviews of ILD patients were conducted to 60 randomly selected patients among those who avail the facility in the hospital. International standardized questionnaire based on the St. George Respiratory Questionnaire (SGRQ) and Six-Minute Walk Distance (6MWD), protein and fat free mass index (FFMI) by Bio-Impedance (Non-Invasive) are the tools used in this study. Further, a structure questionnaire to assess demographic data and a follow up pro-forma for weekly telephone call, and planned teaching program on management of ILD were developed.

Result: The data was analyzed with descriptive and inferential statistics. The analysis of the newly diagnosed ILD patients showed that 45% was from 40-59 years of age (53% from the experimental group and 37% from the control group). In both experimental and control group majorities 63% of newly diagnosed interstitial lung disease patients were females from both the groups.It has 35% that has below 10 standard levels (40% in control group and 30% in experimental group) and 29% had a family income range from 0-10,000 (30% from control group and 26% from experimental group). A majority with 70% of newly diagnosed ILD patients belong to nuclear family from both groups. Maximum numbers of body mass index score (40%) among newly diagnosed interstitial lung disease (ILD) patients fall in healthy category (50% in control group and 36% in experimental group). In both control and experimental group, a majority 53% of newly diagnosed ILD patients had a habit of exposing to Chula. In both control and experimental group, a majority (53%) of newly diagnosed interstitial lung disease (ILD) patients were non-vegetarian respectively. In both control and experimental group, a majority (60%) of newly diagnosed interstitial lung disease (ILD) had a history of occupational exposure to dust respectively. In both control and experimental group, a majority (47%) of newly diagnosed interstitial lung disease (ILD) patients had a history of allergy inhalants to pollen respectively. The mean scores of post-test quality of life of experimental group (22.04) was lower than the mean post-test quality of life scores in control group (53.35). The mean post-test quality of life scores in experimental group (22.04) was lower than their mean pre-test quality of life score (64.90).

The mean post-test six-minute walk distance (6MWD) test (483.57) was higher than the mean post-test six-minute walk distance (6MWD) test (304) in control group. The data also shows that the mean post-test six-minute walk distance (6MWD) test scores in experimental group (483.57) was higher than their mean pre-test six-minute walk distance (6MWD) test score (331.67).

The mean post-test protein value (8.37) was higher than the mean post-test protein value (7.0) in control group. The data also shows that the mean post-test protein value scores in experimental group (8.37) was higher than their mean pre-test protein value score (7.37).

The mean post-test fat free mass index (FFMI) (17.51) was higher than the mean post-test fat free mass index (FFMI) (16.28) in control group. The data also shows that the mean post-test fat free mass index (FFMI) scores in experimental group (17.51) was higher than their mean pre-test fat free mass index (FFMI) scores (14.75).

The negative co-relation shows that the quality of life scores decreases. the scores of functional capacity in terms of six-minute walk distance (6MWD) test, protein value, fat free mass index (FFMI) increases which suggest the improve quality of life as indicated by decreases quality of life scores enhance the functional capacity in six-minute walk distance (6MWD) test, protein value, fat free mass index (FFMI) among newly diagnosed interstitial lung disease patients after administration of planned teaching program on management of interstitial lung disease. There was significant association between sex in six-minute walk distance, and sex, occupation with protein value and fat free mass index (FFMI) among newly diagnosed interstitial lung disease patients.

The findings of the study have implications for nursing practice, nursing education, nursing research and nursing administrations.

KEYWORDS: *effectiveness, teaching programme, management of Interstitial Lung Disease (ILD), quality of life and functional capacity, patients attending OPD*

INTRODUCTION

Interstitial lung disease seems to occur when an injury to lungs triggers an abnormal healing response, in most cases, the causes are unknown. Occupational and environmental factors leading tolong-term exposure to a number of toxins and pollutants can damage the lungs. These may include: Inhaled substances, Inorganic, Silica dust, Asbestos fibres, Grain dust, Industrial printing chemical (e.g., carbon black, ink mist), Hypersensitivity pneumonitis, Bird and animal droppings, Radiation treatments, some people who receive radiation therapy for lung or breast cancer show signs of lung damage months or sometimes years after the initial treatment. Many drugs can damage the lungs, especially: chemotherapy drugs (Otrexup, Trexall), heart medication (Nexterone, Pacerone) propranolol (Inderal, Innopran), and anti-inflammatory drugs. Non-steroid anti-inflamatory drug (NSAID), Lung can also damage due to auto immune diseases such as: rheumatoid arthritis, scleroderma. According to Wikipedia, the free encyclopedia.

BACKGROUND

In their article pulmonary rehabilitation in restrictive thoracic disordersNicolinoAmbrosino et al. (2017)[5]mentioned that the interstitial lung diseases (ILDs) are a group of over 200 debilitating conditions characterized by lung inflammation and/or fibrosis. Idiopathic pulmonary fibrosis (IPF), the most common and lethal of the ILDs, accounts for approximately one-third of the ILDs and has a median survival of 3 years from diagnosis. However, the clinical course varies widely and some patients with IPF will experience long periods of stability, whilst others will have frequent exacerbations or a rapid decline. Interstitial lung disease may also occur due to an underlying systemic disease process, such as connective tissue disease or sarcoidosis, or an occupational exposure, such as asbestosis or silicosis. The incidence of ILD is increasing globally, largely due to a rise in the number of people who are diagnosed with IPF. Idiopathic pulmonary fibrosis is a disease of older people, with an estimated prevalence of 19 per 100,000 in those aged 55–64 years, rising to 88 per 100,000 in those 75 and over. Consequently, there will be more people living with IPF as the population ages in developed nations. Whereas

ASSUMPTIONS

1. The study will be based on the following assumptions: Newly diagnoses patient visiting outpatient department (OPD) may have decrease level of quality of life (QOL) and functional capacity (FC).
2. The planned teaching programme will be effective in enhancing quality of life, functional capacity among ILD patients.
3. Quality of life (QOL) can be measured by St George Respiratory Questionnaire (SGRQ),
4. Functional capacity can be measured by six-minute walk distance (6MWD) in meter, protein value, FFMI by bio-impedance (Non-invasive) machine.

Regular weekly follows up for 8 weeks' will be effective in improving quality of life and functional capacity

METHODOLOGY

SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

Group	Day 1		8 weeks'
	Assessment pre-test	Intervention	
Experimental group	Administration of tool for pre-test to assess quality of life and functional capacity among Interstitial Lung Disease (ILD) patients.	Administration of planned teaching program on management of Interstitial Lung disease (ILD). Follow up 8 weeks by weekly telephonic call.	Administration of tool for post-test to assess quality of life and functional capacity among Interstitial Lung Disease (ILD) patients.
Control group	Administration of tool for pre-test to assess quality of life and functional capacity among Interstitial Lung Disease (ILD) patients.	-	Administration of tool for post-test to assess quality of life and functional capacity among Interstitial Lung Disease (ILD) patients.

Symbolic representation of the research design adopted for the study is represented as follow

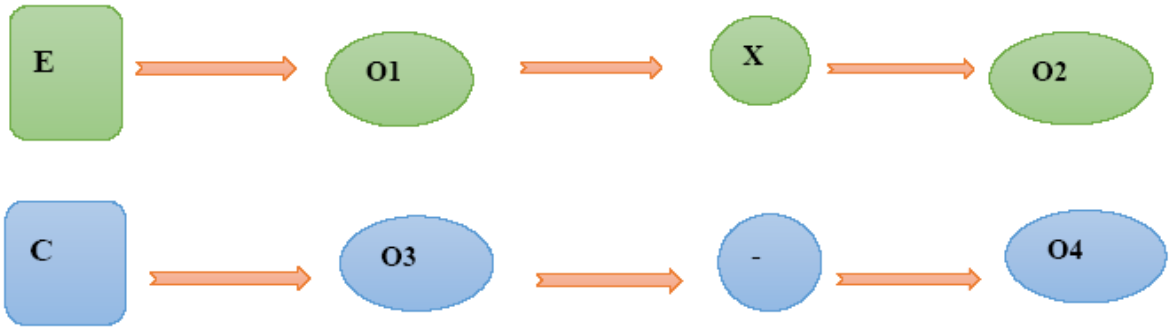

Figure 3.1: Symbolic representation of the research design

VARIABLES UNDER STUDY

INDEPENDENT VARIABLES:

Independent variable in present study are:

In the present study, the independent variable is planned teaching program on management of Interstitial Lung Disease (ILD) and weekly follow up by telephonic call for 8 weeks**.**

DEPENDENT VARIABLES:

The dependent variables of this study are:

In present study, the dependent variables were the "Quality of life and Functional capacity in terms of six-minute walk distance (6MWD) test, protein value, Fat Free Mass Index (FFMI)" among newly diagnosed Interstitial Lung Disease (ILD) Patients.

EXTRANEOUS VARIABLES

In the present study extraneous variables were the following:

A. Age
B. sex
C. Education
D. Medical illness
E. Occupation
F. Socio economic status

SETTING OF THE STUDY

The research setting selected for the study was:

Vallabhbhai Patel Chest Institute, University of Delhi

The rationale of selecting this setting was:

- Familiarity with the setting
- Availability of the subjects
- Feasibility of conducting the study
- Easy access to the subjects
- Administrative approval and excepted co-operation for study from various personnel.

POPULATION

In the present study, the population comprised of the newly diagnosed interstitial lung disease (ILD).

SAMPLE AND SAMPLING TECHNIQUE

The sample selected for the study comprised of newly diagnosed interstitial lung disease patients in the outpatient department (OPD) of Vallabhbhai Patel Chest Institute, University of Delhi.

SAMPLE SIZE

In the present study sample size consists of following:

In present study, sample size consists of the following:

In experimental group- 30
In control group- 30

SAMPLING TECHNIQUE

A purposive sampling technique (judgmental sampling) is one in which the researcher deliberately selects the sampling units that are to be included in the study because they are the representatives of the target population.

SAMPLE CRIETERIA

The criteria for the selection of the sample include-

- Newly diagnosed interstitial lung disease (ILD) patients within 3 months.
- Newly diagnosed interstitial lung disease (ILD) patients who can understand and write Hindi.
- Newly diagnosed interstitial lung disease (ILD) patients available at the time of data collection.
- Newly diagnosed interstitial lung disease (ILD) willing to participate in the study.
- No other severe co-morbidities that could affect outcome parameter (quality of life and functional capacity.

The criteria for exclusion of sample include

- Newly diagnosed Interstitial lung disease (ILD) who are not willing to participate in the study
- Critically ill interstitial lung disease (ILD) patients.

ANALYSIS AND INTERPRETATION

Finding related to sample characteristic of the study reveal that

- The maximum number of newly diagnosed interstitial lung disease patients (45%) was from the 40-59 years of age (53% from the experimental group and 37% from the control group).

- In both experimental and control group a majorities (63%) of newly diagnosed interstitial lung disease patients were females, from both the groups.
- The maximum number of newly diagnosed interstitial lung disease (ILD) patients (35%) was having below 10 standard levels (40%) in control group and 30% in experimental group).
- Maximum number of newly diagnosed interstitial lung disease (ILD) patients who participated in the study (29%) had a family income range from 0-10,000 (30% from control group and 26% from experimental group).
- In both control and experimental group, a majority (53%) of newly diagnosed interstitial lung disease (ILD) patients had a habit of exposing to Chula respectively.
- In both control and experimental group,a majority (70%) of newly diagnosed interstitial lung disease (ILD) patients belong to nuclear family from both groups.
- In both control and experimental group,a majority (53%) of newly diagnosed interstitial lung disease (ILD) patients were non-vegetarian respectively.
- In both control and experimental group, a majority (60%) of newly diagnosed interstitial lung disease (ILD) had a history of occupational exposure to dust respectively.
- In both control and experimental group, a majority (47%) of newly diagnosed interstitial lung disease (ILD) patients had a history of allergy inhalants to pollen respectively.
- Maximum numbers (40%) of newly diagnosed interstitial lung disease (ILD) patients fall in healthy category (50% in control group and 36% in experimental group).

Findings related to effectiveness of planned teaching programon management of interstitial lung disease (ILD) in terms of quality of life in control group and experimental group

- The findings show that the mean post-test quality of life scores of experimental group (22.04) was lower than the mean post-test quality of life scores in control group (53.35). The data also shows that the mean post-test quality of life scores in experimental group (22.04) was lower than their mean pre-test quality of life score (64.90).
- The standard deviation of post-test quality of life scores of experimental group (6.47) is less than their standard deviation of pre-test quality of life scores (15.75). The findings revealed that the standard deviation of post-test quality of life scores of experimental group (6.47) is less than the standard deviation of post-test quality of life score of control group (17.02) indicating that group has become homogenous after the administration of planned teaching program on management of interstitial lung disease (ILD).
- The obtained mean difference (42.86) between pre-test and post-test quality of life score of experimental group is found statistically significant as evident from the‘t’ value of 2.01 at 0.05 level of significance. Thus it was established that the difference obtained in the mean pre-test and post-test quality of life scores in experimental group is a true difference and not by chance. Hence the research hypothesis H1 is accepted and null hypothesis H01 is rejected. This shows that planned teaching program on management of interstitial lung disease (ILD) was effective in improving the quality of life.
- The obtained mean difference (31.46) between post-test quality of life score of experimental and control group is found statistically significantas evident from the ‘t’ value of 2.02 at 0.05 level of significance. Therefore, the mean difference was a true difference and not by chance. Hence the research hypothesis H2 is accepted and null hypothesis H02 is rejected. This shows that planned teaching program on management of interstitial lung (ILD) was effective by improving quality of life.

Findings related to effectiveness of planned teaching programme on management of interstitial lung disease (ILD) in terms of functional capacity in control group and experimental group

- The mean post-test six-minute walk distance (6MWD) test (483.57) was higher than the mean post-test six-minute walk distance (6MWD) test (304) in control group. The data also shows that the mean post-test six-minute walk distance (6MWD) test scores in experimental group (483.57) was higher than their mean pre-test six-minute walk distance (6MWD) test score (331.67).
- The standard deviation of post-test six-minute walk distance (6MWD) test scores of experimental group (98.85) is more than their standard deviation of pre-test six-minute walk distance (6MWD) test scores (97). The findings revealed that the standard deviation of post-test six-minute walk distance (6MWD) test scores of experimental group (98.85) is higher than the

standard deviation of post-test six-minute walk distance (6MWD) test score of control group (82.46) indicating that group has become heterogamous after the administration of planned teaching program on management of interstitial lung disease (ILD).

- The obtained mean difference (-151.88) between pre-test and post-test of six-minute walk distance (6MWD) test score in experimental group is found statistically significant as evident from the 't' value of 2.0 at 0.05 level of significance. Thus it was established that the difference obtained in the mean pre-test and post-test of six-minute walk distance (6MWD) test scores in experimental group is a true difference and not by chance. Hence the research hypothesis H3A is accepted and null hypothesis H03A is rejected. This shows that planned teaching program on management of interstitial lung disease (ILD) was effective in improving the functional capacity in terms of six-minute walk distance (6MWD) test.
- The obtained mean difference (179.57) between post-test six-minute walk distance (6MWD) test score in experimental and control group is found statistically significant as evident from the 't' value of 2.0 at 0.05 level of significance. Therefore, the mean difference was a true difference and not by chance. Hence the research hypothesis H3B is accepted and null hypothesis H03B is rejected. This shows that planned teaching program on management of interstitial lung (ILD) was effective by improving functional capacity in terms of six-minute walk distance (6MWD) test.
- The mean post-test protein value (8.37) was higher than the mean post-test protein value (7.0) in control group. The data also shows that the mean post-test protein value scores in experimental group (8.37) was higher than their mean pre-test protein value score (7.37).
- The standard deviation of post-test protein value scores in experimental group (1.57) is higher than their standard deviation of pre-test protein value scores (1.54). The findings revealed that the standard deviation of post-test protein value scores in experimental group (1.57) is higher than the standard deviation of post-test protein value in control group (1.52) indicating that group has become heterogeneous after the administration of planned teaching program on management of interstitial lung disease (ILD).
- The obtained mean difference (-1) between pre-test and post-test of protein value score in experimental group is found statistically significant as evident from the 't' value of 2.01 at0.05 level of significance. Thus it was established that the difference obtained in the mean pre-test and post-test of protein scores in experimental group is a true difference and not by chance. Hence the research hypothesis H3C is accepted and null hypothesis H03C is rejected. This shows that planned teaching program on management of interstitial lung disease (ILD) was effective in improving the functional capacity in terms of protein value.
- The obtained mean difference (-1.37) between post-test protein value scores in experimental and control group is found statistically significant as evident from the 't' value of 2.01 at 0.05 level of significance. Therefore, the mean difference was a true difference and not by chance. Hence the research hypothesis H3D is accepted and null hypothesis H03D is rejected. This shows that planned teaching program on management of interstitial lung (ILD) was effective by improving functional capacity in terms of protein value.
- The mean post-test fat free mass index (FFMI) (17.51) was higher than the mean post-test fat free mass index (FFMI) (16.28) in control group. The data also shows that the mean post-test fat free mass index (FFMI) scores in experimental group (17.51) was higher than their mean pre-test fat free mass index (FFMI) scores (14.75).
- The standard deviation of post-test fat free mass index (FFMI) scores in experimental group (1.88) is higher than their standard deviation of pre-test fat free mass index (FFMI) scores (1.76). The findings revealed that the standard deviation of post-test fat free mass index (FFMI) scores in experimental group (1.88) is higher than the standard deviation of post-test fat free mass index (FFMI) in control group (1.60) indicating that group has become heterogonous after the administration of planned teaching program on management of interstitial lung disease (ILD).
- The obtained mean difference (-2.76) between pre-test and post-test of fat free mass index (FFMI) scores in experimental group is found **statistically significant** as evident from the 't' value of 2.01 at 0.05 level of significance. Thus it was established that the difference obtained in the mean pre-test and post-test of fat free mass index (FFMI) scores in experimental group is a true difference and not by chance. Hence the research hypothesis H3E is accepted and null hypothesis H03E is rejected. This shows that planned teaching program on management of interstitial

lung disease (ILD) was effective in improving the functional capacity in terms of fat free mass index (FFMI).

- The obtained mean difference (-1.23) between post-test protein value scores in experimental and control group is found statistically significant as evident from the 't' value of 2.01 at0.05 level of significance. Therefore, the mean difference was a true difference and not by chance. Hence the research hypothesis H3F is accepted and null hypothesis H03F is rejected. This shows that planned teaching program on management of interstitial lung (ILD) was effective by improving functional capacity in terms of fat free mass index (FFMI).

Findings related to relationship between post-test quality of life and post-test functional capacity on management of interstitial lung disease (ILD).

- There is a negative correlation (-0.40) between post-test quality of life score and post-test functional capacity in terms of six-minute walk distance (6MWD) test scores among newly diagnosed interstitial lung disease (ILD) patients in experimental group, which is found to be **statistically significant** at 0.05 level of significance. The negative co relation shows that the quality of life scores decreases. the scores of functional capacity in terms of six-minute walk distance (6MWD) test increases which suggest the improve quality of life as indicated by decreases quality of life scores enhance the functional capacity in six-minute walk distance (6MWD) test among newly diagnosed interstitial lung disease patients after administration of planned teaching program on management of interstitial lung disease.
- There is a negative correlation (-0.38) between post-test quality of life score and post-test functional capacity in terms of protein value scores among newly diagnosed interstitial lung disease (ILD) patients in experimental group, which is found to be **statistically significant** at 0.05 level of significance. The negative co relation shows that the quality of life scores decreases the scores of functional capacity in terms of protein value scores increases which suggest the improve quality of life as indicated by decreases quality of life scores enhance the functional capacity in protein value among newly diagnosed interstitial lung disease patients after administration of planned teaching program on management of interstitial lung disease.
- There is a negative correlation (-0.4) between post-test quality of life score and post-test functional capacity in terms of fat free mass index (FFMI) scores among newly diagnosed interstitial lung disease (ILD) patients in experimental group, which is found to be **statistically significant** at 0.05 level of significance. The negative co relation shows that the quality of life scores decreases the scores of functional capacity in terms of fat free mass index (FFMI scores increases which suggest the improve quality of life as indicated bydecreases quality of life scores enhance the functional capacity in fat free mass index (FFMI) among newly diagnosed interstitial lung disease patients after administration of planned teaching program on management of interstitial lung disease

Finding related to association between post-test quality of life in experimental group with selected factors.

- There was no significant relationship between age, sex, education, medical illness and socio-economic and quality of life.
- This indicates that the quality of life scores is not dependent on selected factor i.e. the quality of life scores is independent on its own and not influenced by the selected factors.

Finding related to association between post-test functional capacity in terms of six-minute walk distance (6MWD) test, protein value, fat free mass index (FFMI) in experimental group with selected factors.

- There was no significant association between age, education, medical illness, and occupation, socio-economic and functional capacity in terms of 6MWD test scores. There was a significant association between sex and 6MWD test scores. This indicates that the functional capacity in terms of is dependent on selected factor i.e. s ex and was independent on its own and not influenced by age, education, medical illness, occupation and socio economic status
- There was no significant association between ages, education, medical illness, socio-economic with functional capacity in terms of protein value. There was a significant association between ages, occupation with functional capacity in terms of protein value. This indicates that the functional capacity in terms on protein value was dependent on i.e. sex, occupation of the newly diagnosed interstitial lung disease patients and was independent on its own and not influenced by age, education, medical illness, and socio economic status.
- There was no significant association between ages, education, medical illness, socio-economic

with functional capacity in terms of fat free mass index (FFMI). There was a significant association between age, occupation with functional capacity in terms of fat free mass index (FFMI). This indicates that the functional capacity in terms of fat free mass index (FFMI) was dependent on selected factor i.e. sex, occupation and was independent on its own and not influenced by age, education, medical illness, and socio economic status

SUMMARY

This chapter dealt with the analysis and interpretation of the data obtained by the structured St George Respiratory Questionnaire, functional capacity in terms of six-minute walk distance (6MWD) test, Protein value, fat free mass index (FFMI) after administration of planned teaching program on management of interstitial lung disease (ILD) among 60 interstitial lung disease (ILD) patients. The researcher analyzed and interpreted the sample characteristics, and evaluates the effectiveness of planned teaching program on management of interstitial lung disease (ILD) in terms of quality of life and functional capacity in terms of six-minute walk distance (6MWD), protein value, fat free mass index (FFMI) among newly diagnosed interstitial lung disease (ILD) patients and also assesses the acceptability and utility of the planned teaching program among interstitial lung disease (ILD) patients.

CONCLUSION

The study found that the interstitial lung diseases affected more the middle aged groups, 40-59 years and majority of the newly diagnosed were female. The disease affected more the person from lower income groups, low education level below 10 standards, exposure to dust, and exposure to Chula. The newly diagnosed interstitial lung disease patients have a low score in quality of life and functional capacity in terms of six-minute walk distance (6MWD) test, protein value, fat free mass index (FFMI), which indicated that there was improvement in functional capacity after administration of planned teaching programme. The effectiveness test scored obtained from the difference in experimental and control group, which were statistically significant on post-test scores. The negative co-relation shows that the quality of life scores decreases the scores of functional capacity in terms of six-minute walk distance (6MWD) test, protein value, fat free mass index (FFMI) scores increases which suggest the improve quality of life as indicated by decreases quality of life scores enhance the functional capacity in protein value among newly diagnosed interstitial lung disease patients after administration of planned teaching program on management of interstitial lung disease.

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