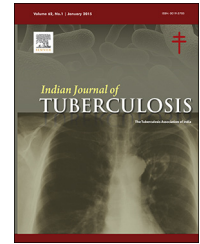


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Original Article

Health benefits of Practical Approach to Lung health (PAL) experienced by patients with chronic respiratory diseases – Results from PAL pilot project in primary health care setting in Kerala, India

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ABSTRACT

Government of Kerala state had implemented a pilot project of the World Health Organisation recommended Practical Approach to Lung health (PAL) strategy, with an intention to improve the quality of diagnosis, treatment and management of common chronic respiratory diseases (CRD) in primary health care settings. The current study was done as a part of implementation of PAL pilot project and was intended to assess the benefits of PAL for the individual patients with CRDs accessing services from primary health institutions. Exit interviews were conducted at the baseline and for impact assessment after six months of pilot project by interviewing patients with CRD attending primary health institutions implementing PAL and control institutions. A total of 94 and 100 CRD patients were interviewed at baseline and after six months in the PAL implementing institutions, and 88 and 96 CRD patients were interviewed at the control institutions. Reduction in number of medical consultation, hospital admissions and exacerbations among CRD patients were 5.03, 3.20 and 2.24 times higher in PAL implementing institutions as compared to the control institutions. PAL pilot project in India implemented in an area with a reasonably sound primary health care system has proved that it might be beneficial for the patients with CRD as it reduces frequency of exacerbations, hospital visits and frequency of medical consultations.

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1. Introduction

Lung diseases are one of the leading causes of death in developing countries.¹ Around 15% of all disability adjusted

life years lost in South East Asia were due to lower respiratory infection, TB, chronic obstructive pulmonary disease (COPD) and asthma.² Chronic respiratory disorders (CRD), if not diagnosed, treated and managed correctly can adversely affect individuals and health systems. But CRD, particularly asthma

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and COPD, have attracted very little special attention in low- and middle-income countries.

Though reliable estimates are not available, studies have suggested that the prevalence of COPD in India may be around 5% in the adult population and general prevalence of chronic bronchitis in rural areas to lie between 6.5% and 7%.³ In India, no definite protocol for diagnosis and management of CRDs is being practiced at primary health care levels except for Tuberculosis.

Kerala, the southern State in India, has a reasonably strong primary health care system with a good infrastructure of primary health centres.⁴ Government of Kerala state had implemented a pilot project of the World Health Organisation (WHO) recommended Practical Approach to Lung health (PAL) strategy, with an intention to further strengthen the health system and to improve the quality of diagnosis, treatment and management of common chronic respiratory illnesses in primary health care settings.^{5,6}

PAL is a patient-centred approach to improve the quality of diagnosis and treatment of common respiratory illnesses in primary health care (PHC) setting. It seeks to standardise service delivery through development and implementation of clinical guidelines and managerial support within the general health system.

PAL has been piloted in Kerala in 12 Primary Health Centres (PHC) and four Community Health Centres (CHC), covering a population of 550,000 in Kollam district. The steps in PAL implementation included estimating the burden of respiratory diseases, assessing the capabilities of the health infrastructure in implementing the PAL strategy, developing clinical guidelines by experts, designing communication messages, formulating an information system to monitor and evaluate the implementation, developing training materials, training of staff and testing the implementation of the clinical guidelines and the information system in the pilot area.⁵ Since all PHCs in the state are manned by qualified modern medicine practitioners, the PAL Treatment and Operational Guidelines (TOG) had more clinical component than that was done elsewhere. Customised and locally appropriate algorithms were prepared for managing acute breathlessness, acute respiratory illnesses and CRD at PHCs, based on International guidelines. Differentiating COPD and bronchial asthma by history, recording Peak Expiratory Flow Rate, inhaled medications, patient education, behaviour change communication for risk reduction and health system initiated retrieval for loss to follow-up were the main components of PAL strategy in the State. The service delivery for the pilot phase was from May 12, 2015 to November 30, 2015.

The current study was done as a part of implementation of PAL pilot project and was intended to assess the benefits of PAL for the individual patients with CRDs accessing services from primary health institutions.

2. Methods

Exit interviews were conducted at the baseline and for impact assessment after six months of pilot project by interviewing patients with CRD attending OPD of primary health institutions implementing PAL. In the same district, 15 other primary

health institutions were randomly selected as control institutions and exit interviews were conducted with patients with CRD attending OPD of those institutions also, concurrently with baseline survey and after six months.

CRD patients less than 15 years were excluded, as the PAL TOG for pilot project addressed only patients above 15 years. Those who were beneficiaries of PAL for a minimum of three months were included during the impact assessment. Five consecutive chronic respiratory disease patients in a day from a PHC and 10 from a CHC were included. A differentiation of probable COPD or Bronchial Asthma was made based on history and prior medical records.

Patients were asked about details of visits to a doctor for their respiratory illness and exacerbations during last month. Details of hospital admissions were also collected with a time frame of three months. Each interview lasted for about 10 min.

In-depth interview was conducted by an investigator experienced in qualitative methods, with 15 randomly selected beneficiaries of PAL (registered for a minimum of three months) to explore their perceptions regarding PAL services. The questionnaire included four open-ended questions regarding their personal experiences with respiratory diseases, benefits and demerits of PAL and suggestions for improvement. Each interview lasted for about 25–30 min. The proceedings were audiotaped and two researchers recorded the proceedings, noting key themes.

Double data entry was done using Microsoft Excel and analysis was done using Statistical Package for Social Sciences version 15 (SPSS Inc., Chicago, IL, USA), for Microsoft Windows. Independent sample t test was used to compare difference between means and a *p* value of less than 0.05 was considered as statistically significant. Regarding qualitative study, audiotapes were transcribed verbatim. These were in Malayalam and were translated into English before coding. Sections with similar coding were grouped according to the pre-determined themes. Repeated themes were marked as important in red font colour. All the flagged statements were put together and synthesised.

3. Results

A total of 94 and 100 CRD patients were interviewed at baseline and after six months in the PAL implementing institutions and 88 and 96 CRD patients were interviewed at the control institutions. The characteristics of the study subjects are shown in Table 1. There was no significant difference between the characteristics of participants in the baseline and impact assessment surveys in pilot area and control area.

It was seen that the total visits to a doctor in a month for people with CRD at PAL implementing institutions was 5.93 (SD 7.63) at baseline and 2.56 (SD 1.33) during the impact assessment survey with a mean reduction of 3.37 (95% CI: 1.84–4.90) visits ($p < 0.001$) while at the same time the mean reduction in number of visits among the patients at control institutions was 0.67 (95% CI: 0.31–1.66). The reduction in the mean number of hospital admissions among the people with CRD attending PAL implementing institutions was 0.77 (95% CI: 0.48–1.07) ($p < 0.001$) while the figure was 0.24 (95% CI: 0.02–0.51) in the control group. The mean number of exacerbations

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