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# COPD - A POLLINATION OF POLLUTION: LPG – A SOLUTION FOR POLLUTION

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**Introduction:**

Air pollution refers to the release of pollutants into the air that are detrimental to human health and the planet as a whole. "Air pollution in the form of carbon dioxide and methane raises the earth's temperature. Another type of air pollution is then worsened by that increased heat: Smog forms when the weather is warmer and there's more ultraviolet radiation." Climate change also increases the production of allergenic air pollutants including mold and pollen. There are two types of pollution that affects the health of the people.

Chronic respiratory diseases include chronic obstructive pulmonary disease (COPD), asthma, pneumoconiosis, interstitial lung diseases, and pulmonary diseases. Of these diseases, COPD and asthma are the most common. COPD is one of the leading non-communicable causes of death globally, as well as in India. India has a population of 1·3 billion people living in 29 states and seven union territories, many of which have populations as large as some countries, and which often vary widely in terms of ecology, economy, and demography, all of which affect respiratory health. The Sustainable Development Goals aim to reduce premature mortality from non-communicable diseases by a third by 2030 through prevention and treatment. The National Health Policy of India 2017 recommends that premature mortality from non-communicable diseases, including chronic respiratory diseases, should be reduced by 25% by 2025.The researcher adopted the following objectives to find the remedy for COPD diseases caused by pollution.

**Objectives of the Study:**

(i) To find out the causes and remedies of indoor pollution
(ii) To assess the socio-economic benefits of LPG Subsidy Scheme to the sample respondents in Dhali Panchayat, Udumalpet Taluk.

**Statement of the Problem:**

The consumption of energy is inevitable for living but there is a need to save our earth from emissions of fuel wood and fossil fuels. LPG is known to be the most useful and effective energy alternative for domestic, as well as business use. The fact that it is offers adaptable usage at lower costs than other energy sources, accompanied with its eco-friendly nature, reduces the diseases caused by indoor pollution, greatly increases the demand among the people. Hence, the government in India launched the LPG Subsidy scheme with effect from 2013 onwards.

**Scope of the Study:**

The study helps the researcher to have a practical exposure in this specific field.

- The study reveals the economic and health benefit of adopting the LPG for cooking
- The study results will be of a great help to the government to continue the subsidy
- Scheme in future to improve the health of the women in India.

**Methodology:**

In this study the researcher has adopted convenience sampling technique for selecting 75 sample BPL families. Primary data was collected from the selected sample by using interview method. The questionnaire was pretested with 10 consumers and revised in the light of the experience gained from the pre test. The statistical tools are utilized to analyze and interpret the primary data collected. Secondary data were collected from the text books, journals and periodicals.

**Limitations:**

It is a micro level study and therefore the findings of the study are applicable only to the low income families only. Since the study is based on the primary data collected through questionnaire, the results of the study is subject to all the limitations of the primary data. The analysis based on some statistical tools which has its own limitation. The findings and suggestions are based on the information given by the respondents.

## The causes and remedies of indoor pollution

The Global Burden of Disease (GBD) report is a world-wide initiative involving the World Health Organization (WHO), which tracks deaths and illnesses from all causes across the world every 10 years. In fact, particulate air pollution is now just three places behind indoor air pollution, which is the second highest killer in India. Nearly 61% of deaths in India are now attributed to non-communicable diseases, including heart disorders, cancer and diabetes, according to new data released by the World Health Organization. Almost 23% are at risk of premature death due to such diseases. Developing countries are confronting more severe air pollution duo to intense energy consumption, large scale demolishment and reconstructions, and increased emissions from transportation in the process of industrialization and urbanization. India is going through a period of transition, both epidemiological and demographic transition. Infectious diseases are still persisting as major health problems in spite of having national programmes for the control of most of these diseases for almost half a century now.

Outdoor air pollution has become the fifth largest killer in India after high blood pressure, indoor air pollution, tobacco smoking, and poor nutrition. The findings of the Global Burden of Disease (GBD) report say that about 620,000 premature deaths occur in India from air pollution-related diseases each year. This is up from 100,000 in 2000—a six-fold increase.

The indoor pollutants contain all the same pollutants as in the outdoor air, but the concentrations are different. Besides the same pollutants in outdoor air, there are some other components in indoor air which come from inside the building. The average life expectancy in India would have been 1.7 years higher if air pollution levels were less than the minimal level causing health loss. The highest increase was in Rajasthan (2.5 years), Uttar Pradesh (2.2 years), and Haryana (2.1 years). The upsurge in respiratory problems in the winter months with peak air pollution is well known, but what is now also becoming better understood is that air pollution is a year-round phenomenon particularly in north India which causes health impacts far beyond the seasonal rise of respiratory illnesses."Air pollution is now the leading risk factor for chronic obstructive lung disease in India, and a major contributor to pneumonia and lung cancer. With 18% of the global population, India suffered 26% of premature mortality and health loss attributable to air pollution globally."

A number of initiatives are undertaken by experts to convene in order to develop strategies that would increase awareness among communities on what each one of us could do to reduce the adverse impact of air pollution on health. A World Bank study released in 2016 revealed that India lost more than 8.5% of its GDP in 2013 due to the cost of increased welfare and lost labour due to air pollution. At its current size of $2.6 trillion, the loss equals about $221 billion. Air pollution has emerged as the deadliest form of pollution and the fourth leading risk factor for premature deaths worldwide. Pollution is responsible for 7% of annual healthcare spending in middle-income countries that are heavily polluted and rapidly developing. If the government takes tough measures against pollution, it will actually increase productivity and lead to economic benefits. Women firewood collectors suffer from neck aches, headaches, back aches, bruises and animal attacks; prolapsed uterus and degeneration of the cervical spines have also been reported. The limited evidence on the direct health impacts of firewood collection and use suggests that reducing or eliminating firewood collection could yield substantial health benefits, especially for women. However, the connection between health and fuel collection has received much less attention than that between biomass cooking and health.

Another health linkage with modern cooking fuels is that increased energy access can have a direct impact on reducing malnutrition, as fuel is needed for adequate cooking. LPG replaces paraffin (kerosene) in cooking. LPG is considered a superior pollution and emissions control technique with relatively low cost of providing household energy for all.

**LPG – Solution for Pollution:**

**"LPG makes cooking easy, fast and economical"**

LPG is a clean-burning, efficient, versatile and portable fuel, produced as a by-product of natural gas extraction and crude oil refining. It can be up to five times more efficient (high calorific value) than traditional fuels, produces less air pollutants than kerosene, wood or coal, and emits about 20% less CO2 than heating oil and 50% less than coal; it also reduces black carbon emissions. Fuel switching from traditional biomass fuels to modern fuels for cooking such as LPG can reduce women's work and time burden, improve health and decrease deaths. Secondary benefits can come from how time saved is used by women to improve their and their families' lives, whether through

income generation, education or leisure. There are likely to be considerable safety benefits due to switching from kerosene to LPG. Modern energy in the form of LPG can also improve the delivery of health services.

LPG scores far better than traditional biomass fuels on virtually all indicators of health impacts: indoor air pollution, fuel collection health impacts, and fires. It significantly reduces indoor air pollution (IAP); and research on exposure-response with respect to child pneumonia shows that compared to fan stoves, chimney/rocket, simple improved stoves and open fires, LPG is the only fuel whose emissions are below the critical level of 10µg per m3 and hence the most likely to yield health benefits. In contrast to LPG, biomass burning typically releases 19 times more emissions per meal.

India has become the second-largest domestic LPG consumer in the world due to the government's rapid rollout of clean fuel plan for poor households and fuel subsidy reforms. LPG consumption by households has reached 19 million tonne, registering an annual growth rate of 10%. Consumption is expected to rise 20 million tonne, backed by expanding consumer base in urban areas and rapid rollout of the 'Ujjwala' scheme for providing LPG connections free of cost to five crore poor households by 2019. The reforms in the subsidy mechanism are elimination of ghost consumers and direct subsidy transfer into bank accounts saved an estimated Rs 21,000 crore, or $3.2 billion. India is home to more than 24 crore households, of which about 10 crore still do not have access to LPG as cooking fuel and have to rely on firewood, coal, dung cakes as primary fuel for cooking.

The study area of Dhali Panchayat is surrounded by the Western Ghats Hills, the women and children have to go through the drudgery of collecting firewood. The idea is that after getting a LPG connection, there would be no need for the women to collect firewood or dung and they can spend that time more productively. The Ujjwala Scheme in Dhali Panchayat also aims at improving health of women folk in rural households, who still depend on firewood, coal, dung cakes as cooking fuel.

**Analysis and Interpretation:**

This section comprises the analysis, presentation and interpretation of the findings of the research study.

**Profile of the Consumers:**

Age is identified as one of the variables that had significant relationship with level of opinion among the consumers.

Table 1 shows the age wise classification of the sample consumers of the study.

**Table 1: Age wise classification**

| Age Group (in Years) | No. of Respondents | Percentage to Total |
|---|---|---|
| Below 30 | 12 | 16 |
| 31-40 | 35 | 47 |
| 41-50 | 18 | 24 |
| Above 50 | 10 | 13 |
| **Total** | 75 | 100 |

From the table 1, it is significant to note that most of the sample consumers are under the age group of 31 – 40 and 41- 50.

**Educational Status of the consumers:**

Education is an important factor which influences the opinion of consumers.

**Table No: 2 Educational Status of the consumers**

| Educational Status | No. of Respondents | Percentage to Total |
|---|---|---|
| Illiterate | 8 | 11 |
| Primary | 17 | 23 |
| Secondary | 32 | 43 |
| Degree | 13 | 17 |
| Master Degree | 5 | 6 |
| **Total** | 75 | 100 |

From the table 2, out of 75 respondents, 43 percent of the consumers had secondary level education and only 6 percent completed the master degree.

**Type of family** which determines the attitude of the consumers.

Table 3: Type of family

| Type of family | No. of Respondents | Percentage to Total |
|---|---|---|
| Joint | 22 | 29 |
| Nuclear | 53 | 71 |
| **Total** | 75 | 100 |

From the table3, it is inferred that 71 percent of the families are in nuclear type and the attitude of consumer among the family members are one and the same.

**Monthly Income** of the Consumers reveals the status of the sample respondents

Table 4:

| Monthly Income (Rs) | No. of Respondents | Percentage to Total |
|---|---|---|
| 1001-2000 | 13 | 17 |
| 2001-3000 | 40 | 54 |
| 3001-4000 | 12 | 16 |
| 4001-5000 | 10 | 13 |
| **Total** | 75 | 100 |

From the table4, it is revealed that 54 percent of the families are in the monthly income of Rs.2001-3000. The total number of 75 families is under the BPL group.

**Opinion on the service of Bharat Gas for the registration under Ujwalla scheme**

**Table 5:** shows the opinion of the consumers for their registration.

| Opinion | No. of Respondents | Percentage to Total |
|---|---|---|
| Good | 67 | 89 |
| Not satisfactory | 8 | 11 |
| **Total** | 75 | 100 |

From the table 5, it is inferred that most of the sample (89 Percent) families are in favour of accepting the Bharat Gas Agency for their first registration for LPG connection.

**Opinion on the LPG subsidy amount provided by the Government**

**Table 6:**

| Opinion | No. of Respondents | Percentage to Total |
|---|---|---|
| Satisfactory | 69 | 92 |
| Not Satisfactory | 6 | 8 |
| **Total** | 75 | 100 |

From the table 6, revealed that 92 percent of the sample consumers are having the satisfactory opinion on the LPG subsidy scheme.

**Opinion on usage of LPG to reduce the indoor- pollution**

**Table 7:**

| Opinion | No. of Respondents | Percentage to Total |
|---|---|---|
| Satisfactory | 75 | 100 |
| Not Satisfactory | - | - |
| **Total** | 75 | 100 |

From the table 7, inferred that all sample respondents (75) have the opinion that the usage of LPG is a good solution for minimum occurrence of respiratory disease caused by indoor pollution.

**Socio-Economic Benefits of LPG subsidy to BPL families:**

The benefits obtained by consuming the LPG are;

- Faster cooking
- Reduce indoor air pollution
- Reduce COPD
- Low kitchen temperature
- Clean kitchen
- Safety
- Environment friendly
- Save time
- Lower cost of process heat
- Increase productivity

**Suggestion and Recommendation:**

The following suggestion is given on the basis of the findings of the study. This study recommended that the LPG Subsidy scheme is very useful to the BPL families and the continuation of the scheme will improve the health of the women in Dhali Panchayat.

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