



# An Analysis of the Impact of PMUY on Gender Equity with Special Reference to Barahiya Block

Namita Kumari<sup>#1</sup>, Pushpa Sinha<sup>#2</sup>

<sup>#1</sup>Research Scholar, University department of economics, Patna University, Patna, Bihar

[amcnamita@gmail.com](mailto:amcnamita@gmail.com)

<sup>#2</sup>Associate Professor, Department of economics, Magadh Mahila College, Patna, Bihar

[pushpasinha.6360@gmail.com](mailto:pushpasinha.6360@gmail.com)

**Abstract**— This study analyses the effects of PMUY program on gender equity in the Barahiya block of the Lakhisarai district, Bihar. PMUY promotes gender equity by adopting a targeted approach towards women needs. Adoption and using of LPG has not only enhanced the participation of women in educational and economic activity but also improved the living standard and health conditions of the PMUY beneficiaries. Women in rural areas are still confined to their traditional roles and hence, a scheme was needed to improve their condition until a deep structural change was affected.

**Keywords**— PMUY, Gender Equity, Indoor Air Pollution, Health, Economic Impact

## I. INTRODUCTION

Since independence, both the central and state government have initiated several schemes to empower women and increase their participation in the economy. One such scheme is the Pradhan Mantri Ujjwala Yojana (PMUY) initiated to promote the use of clean fuel by supplying LPG at subsidized rates to women belonging to BPL households. It aims at improving the health and productivity of women.

The other spill overs of the PMUY include gender equity and environmental benefits. PMUY provides gender equity by a targeted approach towards women's specific needs. Women in rural areas are still confined to traditional roles and hence a scheme was needed to improve their condition until a deep structural change was affected. Further, PMUY has huge potential to act as a check against the rising Greenhouse gases emissions and thereby global warming. The LPG use is greatly beneficial to reduce the household air pollution and increase mortality rate and other human developments dimensions.

In India, nearly 660 million people cook and heat their homes by burning solid fuels such as fire wood, charcoal, crop residual and animal waste, which not only causes high levels of harmful PM2.5 pollution and also contribute to a smaller extent to NO<sub>x</sub> and SO<sub>2</sub> emissions. The rural areas of the country, where more than two-third of the population live

without access to clean cooking, are a major contributor to the total accounted Indoor air pollution. In 2019, Indoor pollution from combustion activities accounted for nearly two third of the India's PM 2.5 emission. The period of 2010-2019 recorded a reduction of 20 percent in the dependency of Indian population on biomass, kerosene or coal [1]. The indoor pollution has been a major cause of premature deaths and though there has been a decrease of 64 percent in indoor pollution related death during 1990-2019 [2], other health problems due to use of bio fuel have persisted.

PMUY scheme has proved to be an effective policy for reducing indoor air pollution and bringing down premature deaths and are expected to continue to further reduce indoor air pollution in future. PMUY also provide opportunities and protection to the women and their families due to reduction in air pollution leading to acute respiratory sickness, by providing them with a clean cooking fuel-LPG so that they don't have to compromise their health in smoky kitchen or wander in unsafe areas collecting firewood by providing subsidized connections to about a third of India's household.

Replacing biofuel with LPG allows women to save time who are likely to then involve themselves in income generating activities and contribute to the economy [3] which was otherwise spent on firewood collection and other cooking related activities. However, there is a need to supplement PMUY by augmenting other programs running on grass root level for awareness of women such as Ujjwala didi, Pradhan Mantri LPG panchayats and so on.

### A. Literature Review

**Mishra et al. (2002)** sheds light on the phenomena of Indoor air pollution which is a major public health problem in developing countries, where it accounts for much ill health and well over a million deaths annually and tends to affects mostly the poor and, among them, mostly women and children. It recognizes that the most effective way to deal with this is to adopt cleaner fuel. [4]

**Nanda (2019)** focuses on the importance of PMUY in the context of gender disparity in households which also

reverberates in the availing of health facilities. The author stresses on monitoring the consumption patterns of enrolled beneficiaries which is important as the ultimate aim of the scheme is to alleviate the physical suffering of women and this can only happen when they regularly refill cylinders and make use of LPG in almost all instances of cooking. [5]

**Kapsalyamova et al. (2021)** in their study discusses the role of access to natural gas, free fuel, convenience or multi-use of fuels and other socio-economic factors in household fuel choice for cooking. It found that the economic factors play a substantial role, in particular, households with higher per capita expenditure and higher income are inclined to move from solid fuel to LPG. [6]

**Pavithra (2021)** argues that India's rural women, in particular, have the potential to be change-makers in the country's efforts to transition to a greener economy. It suggests that enabling women to be part of the renewable energy sector can contribute significantly to the economy. [7]

**Rebecca & David (2005)** found that while income appears to be the dominant force, the energy transition is not moved by money alone. A number of geographic and demographic factors like climate, resource endowments, distance to markets, etc. too are linked with patterns of energy use and help to explain the shift to modern energy sources. [8]

### B. Objectives of the study

The following research objectives have been proposed -

- To estimate the level of awareness of PMUY scheme at the grassroots level
- To examine the effectiveness of PMUY in reducing dependency on biofuel
- To understand the impact on living standard of women after LPG adoption
- To analyse the level of satisfaction among PMUY beneficiaries

### C. Methodology

A sample comprising 100 female respondents were collected from three panchayats – Gangasarai, Aijneeghat and Khutha East of the Barahiya block in the Lakhisarai district of Bihar. The 100 respondents were selected randomly from the BPL list provided by the ward members.

The research method adopted in qualitative and is based on one to one interview. While the research mainly contains primary data, secondary data has also been used. The primary data was collected by using a questionnaire prepared on the basis of the research objectives. The questionnaire contained both open-ended and close-ended questions.

## II. FINDINGS

The major findings of this research are based on the data collected from the respondents

### A. Age group of the respondents

The majority of the respondents in the age group were middle aged and higher with sufficient exposure to the biofuel cooking.

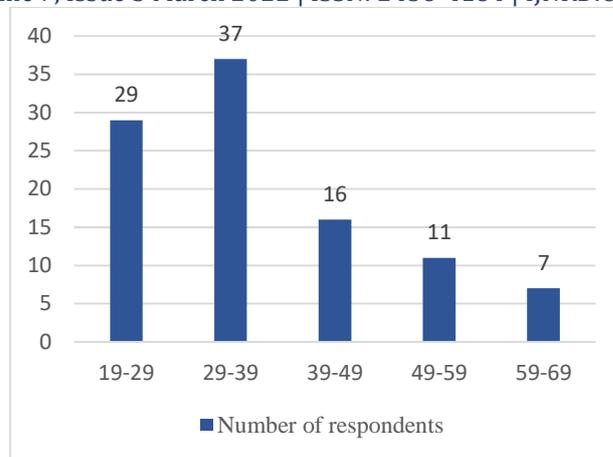


Fig. 1 Age group of the respondents

### B. Awareness

The data showed that there is very high level of awareness of the PMUY programme and people are taking benefits of the PMUY scheme by adopting LPG.

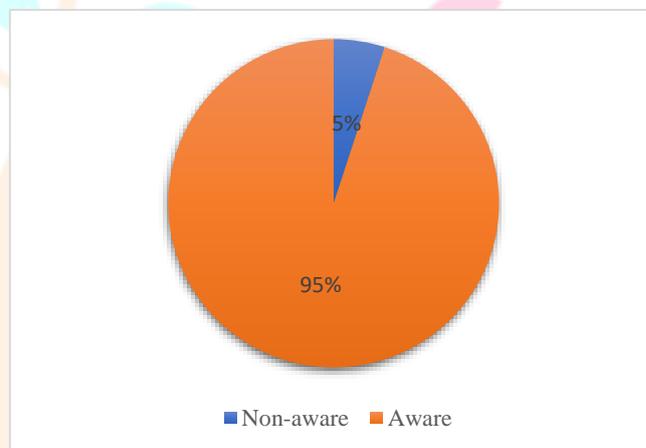


Fig. 2 Awareness of PMUY at grassroots level

### C. Effectiveness of PMUY in reducing biofuel uses

Although LPG adoption under PMUY has increase manifold, the sustained use of LPG is yet to take place. The data showed that around X percent of respondents did not use LPG regularly due to various reasons such as – high cost of refills, lack of a fixed source of income, the habit of using traditional chulha and unsuitability of LPG for cooking certain food items. The availability of cheaper and more accessible alternatives such as - cow dung, crop residue, coal/cake, electricity and the difficulties faced in LPG procurement were other reasons that prevented the respondents from using LPG on a regular basis.

However, the data shows that the majority of the respondents received LPG via door-step delivery and only a few had to travel to the warehouse. The below mentioned pie charts denotes the reasons behind the irregular use of LPG despite adoption by PMUY beneficiaries

1) *Reasons behind irregular use*

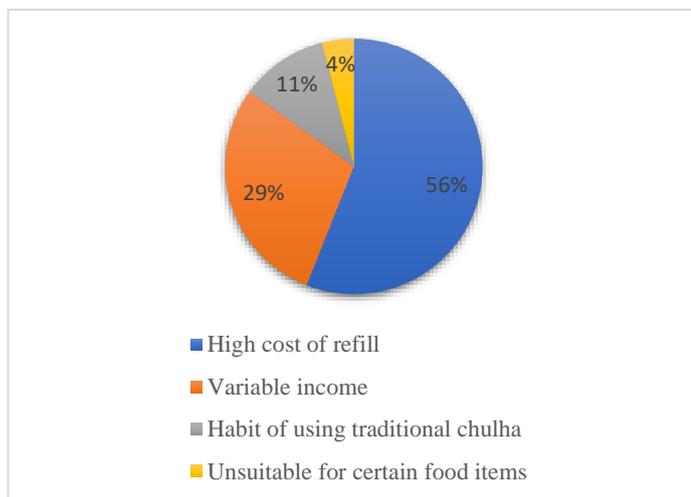


Fig. 3 Irregular use

2) *Availability of cheaper alternatives*

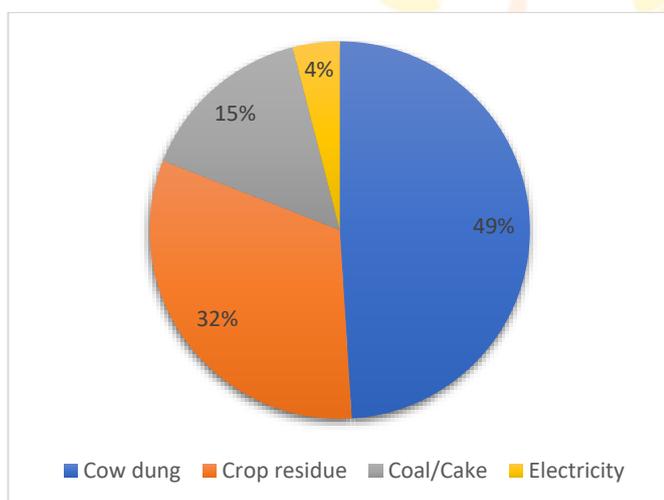


Fig. 4 Cheaper alternatives

3) *LPG procurement*



Fig. 5 Mode of procurement

D. *Effect on health*

Earlier, there were approximately 0.6 million premature deaths in India related to household air pollution caused by cooking on biofuel. PMUY has a major role in reducing household air pollution and improving in health condition of women. Good health is important for the economy as unhealthy people cannot participate in the economic activity

and production process. Health of women is of high concern given their significance in the rural economy. Using biofuel for cooking has severe health hazards and hence LPG adoption helps in improvement in economic participation and productivity of women and their family members by increase their life expectancy [9] and decrease in premature deaths [10]. The WHO choice method estimated health benefits up to INR 69000 by adoption of LPG. People often had to take debts for treatment of the diseases and hence got into a debt trap. Hence there are also economic benefits with increasing number of healthy families.

The data showed that the adult members in many respondent’s family suffered from various diseases due to household pollution. Almost 55 percent of them suffered from lung related diseases and around 20 percent had blindness.

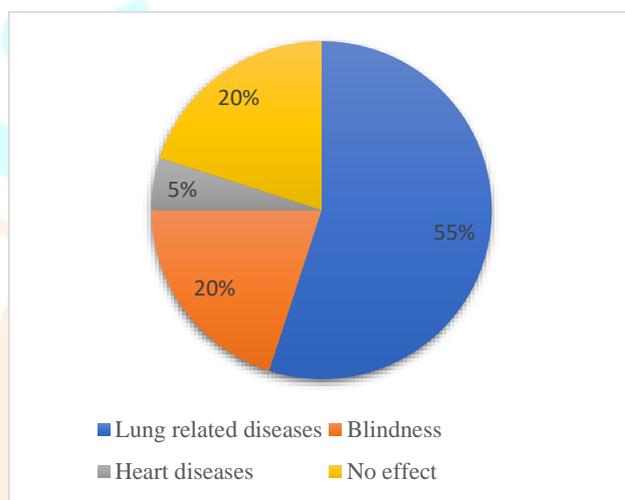


Fig. 6 Health impact

E. *Living standard*

The data showed that people who switched to LPG had an improved living standard as they could save more time which was otherwise spent on the drudgery. The time saved was spent on undertaking other economic activities and even on self-development. The beneficiaries spent that extra time on helping their children with studies, earning extra income or on personal health care

III. CONCLUSION

The role of government policy is to effect change in the society by guiding decision making of the individuals and groups and to enhance the community welfare. These policies are aimed at improving the general quality of life, fast track India’s development and empowerment of specific sections. However, it is imperative that these policies are effectively implemented since despite these measures India has among the worst performing nations in the “Economic Participation and Opportunity’ index” part of the Global Gender Gap report 2020 released by WEF.

Technologies aimed specifically at reducing women drudgery have often not had the desired effect due to lack of other resources needed to benefit from these technologies, such as credit, or because interventions did not take account of the realities of the cultural and economic environment. Hence,

along with the replacement of LPG as the main cooking fuel, supplementary measures are also required to taken [11].

Adoption of socio-technical solutions such as better cooking technologies - efficient biomass combustion stores, electric or LPG cook-stoves are required for reducing negative, health, economic and environmental loss associated with indoor biomass combustion. There are challenges associated with sustained and efficient use of LPG under PMUY.

There are various strategies such as behaviour change communication techniques, participatory designs and collaborations with the local organizations, employed to advance adoption of LPG under PMUY. However, these strategies are initiated to enhance the rate of adoption of LPG and rarely focus on the sustained use of LPG.

The aim of these programs is to raise awareness among the adult women. However, in the patriarchal rural society, the real decision-making power remains with the male head of the society and hence these programs need to sensitize both men and women. While women and girls are critical agents of change and their emancipation is crucial for socio-economic and sustainable development, the significance of intellectual development of men should not be neglected. Hence, a comprehensive approach is required

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