

Impact of Pradhan Mantri Ujjwala Yojana on Behavioral Changes among Rural Women

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Abstract: Women play multiple roles within households and communities, making them central to societal development. Despite this, rural women in India often remain marginalized, particularly in terms of health, economic opportunities, and decision-making autonomy. The Pradhan Mantri Ujjwala Yojana (PMUY), launched by the Government of India, aims to empower women by providing subsidized Liquefied Petroleum Gas (LPG) connections to households Below the Poverty Line (BPL). The transition from traditional biomass fuels to LPG has substantial implications for women's health, time use, and economic productivity. This study assesses the impact of PMUY on the behavioral and lifestyle changes of rural women in two villages of Pusa Block, Samastipur district, Bihar. A sample of 100 women beneficiaries was selected using random sampling techniques. Findings reveal that PMUY had a medium level of impact on 65%, a high impact on 25%, and a low impact on 10% of respondents. The scheme significantly enhanced health awareness, reduced drudgery, and encouraged cleaner cooking practices among rural women.

Keywords: PMUY, Rural Women, LPG Adoption, Behavioral Change, Women Empowerment.

1. INTRODUCTION

India remains predominantly rural, with nearly 70% of its population residing in villages. Rural households face numerous socio-economic challenges, including dependence on rain-fed agriculture, limited employment opportunities, low wages, inadequate sanitation, insufficient education facilities, and restricted access to healthcare and clean energy sources. Among these, the reliance on traditional cooking fuels—such as firewood, cow dung cakes, and kerosene—poses severe adverse effects on the health of women and children. According to the World Health Organization (WHO), inhaling the smoke from traditional fuels for one hour is equivalent to smoking 400 cigarettes, highlighting the alarming level of indoor air pollution.

Women shoulder a majority of household responsibilities, especially cooking, and are thus the most affected by household air pollution. Recognizing this, the Government of India launched the Pradhan Mantri Ujjwala Yojana (PMUY) on May 1, 2016, in Ballia, Uttar Pradesh. The scheme provides deposit-free LPG connections to BPL households, including a free first refill and hotplate. Subsidies are transferred directly to beneficiaries' bank accounts through the PAHAL system, while digital platforms ensure transparency and effective implementation.

Recent studies emphasize that access to clean cooking energy not only improves health but also frees women's time, encourages participation in income-generating activities, enhances well-being, and contributes to environmental sustainability. Given these considerations, PMUY plays a significant role in fostering behavioral change among rural women by encouraging modern, clean fuel usage.

2. REVIEW OF LITERATURE

Studies worldwide underscore the importance of economic and socio-cultural factors in influencing household fuel choices. Kapsalyamova et al. (2021) highlight that households with higher income levels are more likely to transition from solid fuels to LPG. Pavithra (2021) emphasizes that rural women can act as catalysts in India's transition to a greener economy by adopting clean energy practices. The International Energy Agency (2020) reports that indoor air pollution contributes significantly to India's PM2.5 emissions, although dependency on biomass fuels has declined by about 20% in the last decade.

Research by Nanda (2019) stresses the need to monitor LPG consumption patterns, as improving women's health is only possible when PMUY beneficiaries regularly use LPG. Government initiatives over the years—such as ICDS, RGSEAG, STEP, Beti Bachao Beti Padhao, and Swadhar—have addressed various aspects of women's empowerment, but PMUY specifically targets energy poverty and health risks related to cooking fuels.

Despite the growing body of literature on PMUY, studies focusing on its impact in Bihar—particularly Samastipur district—remain limited. This research aims to bridge this gap.

3. JUSTIFICATION OF THE STUDY

PMUY has improved access to clean cooking fuel among marginalized households, leading to substantial improvements in health, time management, and quality of life. However, limited research has been conducted on the scheme's influence in Samastipur district of Bihar, where traditional fuel use remains widespread. As the researcher is a native of the district, familiarity with local culture, language, and socio-economic conditions facilitates accurate data collection and contextual understanding. The study's findings are expected to contribute to policy enhancement and improved implementation strategies.

4. OBJECTIVES OF THE STUDY

1. To examine the demographic profile of rural women beneficiaries in the study area.
2. To assess the impact of the PMUY scheme on behavioral changes among rural women.

5. HYPOTHESIS

H₀: The four independent variables of the PMUY scheme have no positive impact on behavioral changes among rural women.

6. RESEARCH METHODOLOGY

The study was conducted in Deopar and Mahamada villages of Pusa Block, Samastipur, Bihar. The sample consisted of 100 female PMUY beneficiaries, with 50 respondents selected from each village through simple random sampling from the BPL list.

Primary data were collected using a structured questionnaire containing close-ended questions aligned with the study objectives. Descriptive statistics and categorical classifications were used to analyze demographic variables and impact levels.

7. RESULTS AND DISCUSSION

7.1 Socio-Economic Profile of Respondents

Table 1. Distribution of the respondents according to Socio-Economic Profile.

Variables	Respondents (n=100)	Frequency	Percentage
Age	Adulthood (18-45)	21	21.00
	Middle-aged (45-60)	52	52.00
	Old age (Above 60)	27	27.00
Caste	GEN	25	25.00
	OBC	51	51.00
	SC	24	24.00

Education	Illiterate	41	41.00
	Functionally literate	16	16.00
	Primary School Education	21	21.00
	Middle School Education	10	10.00
	Secondary School Education	6	6.00
	Higher secondary Education	4	4.00
	Graduation and above	2	2.00
Annual Income	50,000-1,00,000	63	63.00
	1,00,001-2,00,000	35	35.00
	2,00,001-3,00,000	2	2.00

Respondents were categorized by age, caste, education, and annual income. Key findings include:

- **Age:** 52% were middle-aged (45–60 years), 27% elderly, and 21% adults (18–45 years).
- **Caste:** 51% belonged to OBC, 24% to Scheduled Castes, and 25% to General category.
- **Education:** 41% were illiterate, 16% functionally literate, and only 2% had completed graduation.
- **Income:** 63% belonged to the low-income group, 35% to medium-income, and 2% to higher-income categories.

7.2 Impact of PMUY

Table 2. Distribution of respondents on the basis of Impact of PMUY

Sl. No.	Category	Respondents (n=100)	
		Frequency	Percentage
1.	Low (Less than 33.33)	10	10
2.	Medium (33.33-66.66)	65	65
3.	High (above 66.66)	25	25

To assess the impact of PMUY, 27 indicators were used, categorized into three levels: low, medium, and high.

- **Low Impact:** 10%
- **Medium Impact:** 65%
- **High Impact:** 25%

The medium-to-high impact on 90% of respondents indicates substantial improvements in health, clean fuel usage, time savings, and overall household well-being. Many women reported that LPG reduced drudgery, improved cooking efficiency, and minimized exposure to harmful smoke.

8. CONCLUSION

The findings confirm that PMUY has significantly influenced behavioral changes among rural women in the study area. The transition from biomass fuels to LPG has contributed to improved health outcomes, time efficiency, and cleaner household environments. While rural women initially hesitated to adopt LPG due to cultural and taste preferences associated with firewood cooking, regular use and practical benefits have led to acceptance over time.

The cost of biomass-related health issues often exceeds the cost of LPG refilling, emphasizing the necessity of sustained clean fuel usage. Today, rural households predominantly rely on LPG, while urban households use multiple modern cooking technologies. The positive behavioral shifts observed in the study area demonstrate the scheme's effectiveness in transforming rural cooking practices.

9. SUGGESTIONS

- Awareness campaigns should be intensified by panchayats, NGOs, and government departments to discourage the use of firewood and promote clean cooking practices.
- Beneficiaries often face delays in procuring LPG refills; therefore, providing an additional subsidized cylinder could ensure uninterrupted LPG usage.

- Behavior change communication (BCC) strategies must focus on addressing traditional beliefs regarding taste and cooking methods.
- Regular monitoring of refill patterns is necessary to ensure sustained LPG use.

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