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### Constraints perceived in adoption of Pradhan Mantri Ujjwala Yojana in Rohtas district in Bihar

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#### Abstract

Considering the perception of the LPG dealers and households towards Pradhan Mantri Ujjwala Yojana, the current study is carried out in the Rohtas district of Bihar in 2023. A total of 120 respondents i.e., 120 women households were taken for the study from 10 villages of 2 blocks under Rohtas district. 22 specific constraints perceived by households were categorized into 4 broad constraints, viz., social, cultural, economic, and physical constraints. Analysis was performed by using Garrett's ranking method, and specific constraints were ranked accordingly. Garrett's mean scores of specific constraints ranged 33.45 to 72.45 for social constraints, 42.98 to 65.03 for cultural constraints, 35.48 to 75.57 for economic constraints, and 40.530 to 70.60 for physical constraints as perceived by households. The paper may provide a better insight into the grassroots level constraints for implementation and acceptance of Pradhan Mantri Ujjwala Yojana in rural villages of India.

**Keywords:** Constraints, Pradhan Mantri Ujjwala Yojana, study

#### Introduction

Cooking, a major daily task for Indian women, often involves using traditional chulhas that burn solid fuels such as firewood, cow dung cakes, crop residue, and coal. This practice releases harmful pollutants that can negatively affect the respiratory health of women and children, who typically spend more time at home (Sahoo B *et al.*, 2022) [6]. In response, the Pradhan Mantri Ujjwala Yojana (PMUY) was launched on May 1, 2016, in Uttar Pradesh's Ballia district. This significant government initiative aims to substitute these traditional fuels with cleaner Liquefied Petroleum Gas (LPG) for underprivileged households, thereby reducing household air pollution (Sidhu *et al.*, 2017; National Portal of India, n.d.). The scheme successfully distributed 8 Crore LPG connections ahead of schedule and was followed by an additional 1.6 Crore connections under Ujjwala Yojana 2.0 in 2022 (Ministry of Petroleum and Natural Gas, n.d.). Despite these achievements, the adoption and sustained use of LPG remain challenging due to high refill costs, low socioeconomic conditions, and a lack of awareness, especially in rural areas like Bihar where a significant portion of the population is still illiterate (Census, 2011) [4]. These factors contribute to the discontinuation or non-use of LPG cylinders post initial adoption (Cabiyo *et al.*, 2020) [3]. Furthermore, research by Sahani *et al.* (2020) [9] identified multiple constraints—production, economic, post-harvest, marketing, social, and institutional—faced by farmers in adopting new agricultural technologies. Similarly, the study on PMUY categorized challenges into four main types: social, cultural, economic,

and physical, aiming to prioritize and address these for smoother implementation and uptake of the scheme among the target communities.

#### Materials and Methods

The study is conducted in 2023 by using an exploratory research design. State Bihar ranked third in the number of beneficiaries covered under PMUY. Rohtas district was selected purposively for the study and data collection. Rohtas district consists of 19 blocks, out of that, Suryapura and Dawath blocks were selected. 5 villages were selected from each of the blocks and from each village 12 respondents are taken. A total of 120 women respondents were finalized for the study. To determine the constraints perceived by the respondents and, a semi-structured interview schedule was prepared. Primary data was collected through personal interviews and open discussion methods with respondents.

#### Results and Discussion

##### Constraints faced by beneficiaries

The predominant social constraint identified was the easy availability of traditional fuels like firewood, cow dung cake, agricultural residues, and kerosene oil, with a mean score of 72.45 Rural beneficiaries, having convenient access to these fuels, showed a low inclination towards the scheme, a finding supported by the CAG Report of 2019 [4]. Additionally, a significant barrier was the lack of awareness about the interest-free loans offered by gas companies for new connections, with a mean score of 58.80. Challenges

such as the lengthy application process (55.40), the distant location of dealers (43.70), and difficulties in communicating with dealers about LPG connections and subsidies (33.45) were also noted. Many respondents, particularly the illiterate, perceived the application process as cumbersome and lengthy. The scarcity of gas agencies nearby made regular contact difficult, and respondents felt uncomfortable discussing their issues with dealers.

Cultural constraints included issues like large cooking pots not fitting on the provided stoves, with a score of (65.03). Families in joint living arrangements found it challenging to cook due to the stove's inability to accommodate large utensils. Other notable issues were the time required to prepare cooked feed for cattle (51.55) and the higher gas consumption during winter for boiling water (42.98), as most families have livestock and rely on hot water daily, with gas failing to meet these demands compared to traditional fuels. Furthermore, there was a preference for the taste and aroma of food cooked over firewood and coal.

Economic constraints were led by high refilling costs (74.57), challenges in arranging immediate funds for

cylinder refills (63.39), delays in subsidy credits (50.73), regular maintenance costs for gas stoves (46.48), and transportation costs to dealer locations (35.48). Despite a government subsidy of Rs. 1600 for new connections, the cylinder refilling cost rose to Rs. 1132, leading to significant gaps in refilling time, often between 3 to 10 days or more, due to limited financial control (Cabiyo *et al.*, 2020) [3]. Mentioned that the respondents often resorted to using chulha due to irregular and insufficient income, with women dependent on the family's primary earners for gas refills. During the COVID-19 pandemic, the situation worsened as people had to purchase LPG cylinders at full price without any subsidies (Sahoo *et al.*, 2022) [6], illustrating further economic challenges.

Respondents perceived lack of proper infrastructure in the kitchen to install stove (70.60), chance of cylinder explosion in kutcha houses (59.40), backache or leg pain during the long cooking period (50.20), carrying heavy LPG cylinder from dealer location to home location (40.30) were important physical constraints.

**Table 1:** Social constraints

S. No.	Social constraints (Range: 23-77)	Mean score (x)	Rank
1.	Easy availability of conventional fuels	72.45	I
2.	Unaware of the interest-free loan provided by gas companies for new connections	58.80	II
3.	Long distance of dealer location	43.70	IV
4.	Unable to consult the dealer about LPG connection and subsidy	33.45	V
5.	Lengthy application process	55.40	III
<b>Cultural constraints (Range: 27-73)</b>			
1.	Large cooking pots unfit on cooking stove	65.03	I
2.	Excessive consumption of gas during winter to boil water	42.98	III
3.	Time is taken to prepare cooked feed for cattle	51.55	II
<b>Economic constraints (Range: 23-77)</b>			
1.	<b>High refilling cost</b>	74.57	I
2.	Arranging money for immediate refilling when cylinder is empty	63.39	II
3.	Subsidy amount doesn't credit in account timely	50.73	III
4.	Transportation cost to dealer location	35.48	IV
<b>Physical constraints (Range: 25-75)</b>			
1.	Lack of proper infrastructure in kitchen to install stove	70.60	I
2.	Chance of explosion of cylinder in kutcha houses	59.40	II
3.	Carrying heavy LPG cylinder from dealer location to home location	40.30	IV
4.	backache or leg pain during the long cooking period	50.20	III

**Conclusion**

Since its launch in 2016, the Pradhan Mantri Ujjwala Yojana (PMUY) has been notably successful in distributing new LPG connections to BPL women. However, it's crucial to identify and address the scheme's shortcomings in implementation and LPG adoption at the levels of both dealers and households. Research has identified several practical barriers as perceived by users, with the prominent ones being the easy availability of traditional fuels and the high cost of refilling LPG cylinders. Additionally, the accessibility of free solid fuels for traditional stoves and the socio-economic status of impoverished families were the main challenges in implementing PMUY. To ensure the sustainability of this widespread initiative, government officials and policymakers need to effectively address these issues.

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