

Impact of Pradhan Mantri Ujjwala Yojana

Evidence from Jammu and Kashmir

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The impact of Pradhan Mantri Ujjwala Yojana on liquefied petroleum gas adoption and women's health in Jammu and Kashmir was studied through a survey of 820 households in Kulgam and Rajouri districts. Results showed that PMUY facilitated LPG adoption in 67.57% of households, increasing the LPG connection rate to 95.59%. However, 84.63% of households still rely on LPG and solid fuels, both due to affordability, access to cheaper firewood, and information and infrastructural challenges. While beneficiaries experienced health improvements, such as reduced respiratory ailments, these gains are constrained by continued solid fuel use. Complementary appliances, awareness campaigns, and improved infrastructure are critical to maximise PMUY's potential and promote exclusive clean fuel use.

According to the International Energy Agency, approximately 681 million Indians still depend on biomass for cooking (Sharma and Dash 2022), posing serious health risks, particularly for women due to patriarchal norms and gendered household roles (Akter and Pratab 2022; Vyas et al 2021). A growing body of literature at the international level highlights the health and economic benefits of transitioning from traditional to modern cooking fuels (Martina et al 2020). The energy ladder hypothesis posits that the adoption of clean fuels progresses in phases, with income, starting with solid fuels, moving to transition fuels, and eventually to cleaner energy (Heltberg 2005). However, the consumption patterns observed in developing countries partly contradict the energy ladder hypothesis, particularly in rural areas, where higher incomes are associated with a combined use of solid fuels and clean technologies (called fuel stacking), rather than the exclusive use of clean fuels (Campbell et al 2003; Brouwer and Falcao 2004).

In India, Prime Minister Narendra Modi launched the Pradhan Mantri Ujjwala Yojana (PMUY) scheme in 2016, providing free liquefied petroleum gas (LPG) connections to women in low-income households. The scheme also offers subsidised gas refills. Over 10.3 crore gas connections have been distributed under the scheme (Jabir and Khan 2022). However, the existing literature presents an ambiguous picture regarding the role of PMUY in enhancing LPG adoption and women's health (Gupta et al 2020; Kar et al 2020; Swain and Mishra 2020).

The recent literature from several states of India has examined a host of factors associated with clean fuel adoption, ranging from household characteristics to forest proximity and infrastructural challenges (Sharma and Dash 2022; Kuo and Azam 2019; Sehgal et al 2014; Pandey and Chaubal 2011). However, limited attention has been devoted to analysing cooking fuel consumption patterns and the role of the PMUY in Jammu and Kashmir (J&K). The distinct cultural, climatic, and socio-economic conditions in J&K, coupled with its mountainous terrain, make it a unique case for studying the role of energy subsidies in facilitating fuel-switching behaviour. Understanding how PMUY has influenced fuel choices and women's health in this region is crucial for targeted interventions and informed policymaking.

This paper addresses this gap by examining the cooking fuel consumption patterns and the role of the PMUY in J&K, using a primary survey covering 820 households in the Kulgam and

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