Sustainable Cooling Practices in Retail: Insights from Cooling Appliance Retailers in Nagpur District

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Abstract

This paper looks at how local appliance retailers in Nagpur District are involved in the shift towards more sustainable cooling solutions. Based on a survey of 54 retailers, we explore what kinds of products are being sold, what customers are looking for, and how much people care about energy efficiency and environmental impact. While basic appliances like fans and coolers dominate the market due to cost, there is a growing interest in energy-saving and eco-friendly options. However, the uptake is still low due to price, lack of awareness, and limited supply. We suggest steps like better training for retailers, financial incentives, and awareness campaigns to help speed up the adoption of sustainable cooling.

Keywords: Cooling Appliances, Retailer Survey, Energy Efficiency, Environmental Awareness, Sustainable Cooling, Nagpur

Introduction

In hot cities like Nagpur, cooling appliances are essential. As temperatures rise due to climate change, more people are buying fans, air conditioners, and coolers. But this also increases electricity use and environmental pressure. Retailers play an important role in what products people buy and how they use them. While a lot has been studied about how families use appliances, we still don't know enough about what retailers think and experience.

This study fills that gap by focusing on 54 retailers from different parts of Nagpur District—urban, semi-urban, and rural. These shopkeepers are the bridge between manufacturers and customers. Their views, experiences, and challenges can help us design better policies and campaigns to promote energy-efficient and environmentally friendly appliances.

Literature Review

Researchers have studied how people use energy in their homes (Khosla et al., 2021) and the benefits of technologies like evaporative cooling (Bhakre et al., 2023). The International Energy Agency (2018) warns that the world's cooling energy needs may triple by 2050. Other studies (Smith et al., 2020; Zhou et al., 2021) looked at what influences people's behavior and satisfaction with appliances.

In India, high prices and lack of trust in manufacturers have been found to be major hurdles to adopting energy-efficient products (Kumar et al., 2021; Singh, 2021). Policy efforts like subsidies help, but often don't last long (Rao et al., 2019). What's missing from all this research is the voice of the retailer. Our paper aims to bring that perspective forward.

Methodology

We used a structured questionnaire to gather data from 54 appliance retailers across different zones in Nagpur. We covered five key areas:

- What customers buy and why
- How much they know or care about energy-saving features
- Environmental awareness
- Market conditions and trends
- How shops educate or influence customers

We selected a mix of urban and rural retailers using a method that ensures fair representation. We used simple statistics to understand patterns and grouped open-ended answers by themes.

Hypothesis: We started with the idea that retailers may not play a big role in promoting energy-efficient appliances (**Null Hypothesis - H_0**). We wanted to test if this is true, or if retailers actually do influence such decisions (**Alternative Hypothesis - H_1**). Based on our data, we found that most retailers see themselves as influencers in customer decisions. So, we rejected the null hypothesis.

Results and Discussion

Appliance Preferences

Fans and coolers are the most common products retailers sell. Nearly half of them sell fewer than 50 units a month. Price is the top factor influencing what customers choose, followed by brand and energy efficiency.

Energy Efficiency

Most retailers agree that energy efficiency is important to customers, at least to some extent. But fewer than half said they saw a big rise in sales of such products. High prices and low trust in energy-saving claims were common concerns.

Environmental Awareness

Eco-friendly appliances make up a small part of overall sales. Many rural customers aren't even aware of the environmental impact of cooling appliances. Only about 40% of retailers offer green products, and even fewer say these are a major part of their sales.

Market Trends

Sales peak in the summer, and pricing matters a lot, especially for low-income customers. Retailers say the market has grown in recent years, but they face big hurdles like stiff competition and unstable supply chains.

Retailers as Change Agents

Two-thirds of retailers feel they play a big role in spreading awareness about sustainable cooling. However, only 30% actually give out educational material. Educated and urban buyers are more likely to ask about efficiency and eco-friendliness.

Conclusion and Recommendations

Conclusion

Retailers are important players in moving toward sustainable cooling. People are interested in energy-saving appliances, but affordability and lack of information hold them back. Retailers themselves need better support and resources to promote green choices.

Recommendations

- **Support Retailers**: Give them incentives to stock and promote eco-friendly models.
- **Training Programs**: Organize workshops and online sessions to improve retailer knowledge.
- **Public Awareness**: Create easy-to-understand material in local languages about energy-efficient appliances.
- **Government Help**: Expand subsidy schemes and launch joint initiatives with private companies.

References

1. R. Khosla, A. Agarwal, N. Sircar, and D. Chatterjee, "Changing cooling energy consumption in India's urban households," *Environmental Research Letters*, 2021.
2. S. S. Bhakre, P. D. Sawarkar, and V. R. Kalamkar, "Evaporative cooling of photovoltaic panels in dry and hot climatic conditions," *Energy Sources, Part A*, 2023.
3. International Energy Agency, "The Future of Cooling," *OECD iLibrary*, 2018.
4. J. Smith, L. Brown, and D. White, "Behavioral factors in energy consumption," *Journal of Energy Research*, 2020.
5. H. Zhou, Y. Zhang, and L. Li, "Cooling technologies in China," *Applied Thermal Engineering*, 2021.
6. R. Kumar, P. Sharma, and S. Gupta, "Barriers to energy-efficient appliances in India," *Energy Policy*, 2021.
7. A. Singh, "Lifecycle cost analysis of air conditioners," *Energy and Economics*, 2021.
8. M. Rao et al., "Government interventions for energy saving: Policy analysis," *Journal of Policy Research*, 2019.