

Awareness and Buying Behaviour Towards BEE Star-Labelled White Goods among Working Women with Special Reference to Ramanathapuram District

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Abstract: The increasing concern for energy conservation and environmental sustainability has enhanced consumer interest in energy-efficient household appliances. The present study examines awareness and buying behaviour towards BEE star-labelled white goods among working women with special reference to Ramanathapuram District. The study adopts a descriptive and analytical research design, with primary data collected from 385 working women through a structured questionnaire using a five-point Likert scale. The mean score analysis indicates a high level of awareness, with an overall mean score of 4.09, while awareness that higher BEE ratings indicate greater energy efficiency recorded the highest mean score of 4.31. The findings indicate that working women are generally aware of BEE labels, energy savings and the benefits of energy-efficient appliances, although awareness of environmental benefits and actively seeking BEE-related information requires further improvement. The study concludes that strengthening BEE awareness can encourage informed buying decisions, promote energy-efficient white goods and contribute to sustainable household consumption in Ramanathapuram District.

Keywords: BEE Star Label, Consumer Awareness, Buying Behaviour, Working Women, White Goods, Energy Efficiency, Sustainable Consumption.

1. INTRODUCTION

The rapid advancement of technology, increasing household electricity consumption and growing environmental concerns have significantly influenced consumer preferences towards energy-efficient household appliances. White goods such as refrigerators, washing machines, air conditioners and other major domestic appliances are essential components of modern households and contribute substantially to electricity consumption. Consequently, consumers are increasingly considering not only the initial purchase price, brand and product features but also energy efficiency, electricity savings, durability and environmental impact when making purchasing decisions. The growing emphasis on sustainable consumption has therefore increased the importance of energy-efficient appliances in the household market.

In India, the Bureau of Energy Efficiency (BEE) has implemented the Standards and Labelling Programme to provide consumers with information about the energy performance of appliances. The BEE star label enables consumers to compare appliances according to their energy efficiency, with higher star ratings generally indicating better energy performance. The availability of such information can help consumers make informed choices and encourage the adoption of energy-efficient products. BEE labelling also creates greater awareness of the relationship between appliance efficiency, electricity consumption and long-term household expenditure. Thus, the BEE star rating has become an important factor that can influence consumer evaluation and purchase decisions relating to white goods.

Consumer awareness refers to the extent to which individuals possess knowledge and understanding of products, their features, benefits and relevant information before making a purchase. In the context of BEE-labelled white goods, awareness includes knowledge of the BEE logo, understanding of star ratings, awareness of energy consumption, knowledge of potential electricity savings and the ability to compare the efficiency of different appliances. A consumer who understands BEE ratings may be more likely to consider energy efficiency when selecting household appliances. Therefore, awareness is an important prerequisite for translating energy-efficiency information into actual buying behaviour.

Buying behaviour refers to the process through which consumers recognise their needs, search for information, evaluate available alternatives, make purchasing decisions and develop post-purchase attitudes. In the case of BEE star-labelled white goods, buying behaviour may be influenced by several factors such as BEE label awareness, energy efficiency, price, perceived electricity savings, product quality, brand reputation, durability, environmental consciousness, trust in the BEE label, availability of information and after-sales service. Consumers may be willing to pay a relatively higher initial price for an energy-efficient appliance if they perceive that the product will provide greater long-term savings and environmental benefits.

The increasing participation of women in the workforce has also brought significant changes in household decision-making and consumption patterns. **Working women** increasingly participate in decisions relating to household expenditure, consumer durables and home appliances. Their purchasing decisions may be influenced by income, education, time constraints, convenience, product performance, maintenance requirements, energy consumption and long-term economic benefits. Since working women often balance professional and household responsibilities, energy-efficient appliances that offer convenience and lower operating costs may have particular relevance to them. Their level of awareness and understanding of BEE star labels can therefore play an important role in encouraging the purchase of energy-efficient white goods. Ramanathapuram District provides a relevant geographical setting for studying awareness and buying behaviour towards BEE star-labelled white goods among working women. Differences in education, occupation, income, household characteristics, residential location, access to information and electricity expenditure may influence women's awareness and preferences regarding energy-efficient appliances. Understanding these differences can provide useful insights into the extent to which BEE labelling contributes to informed purchasing decisions among working women in the district.

Although previous studies have examined energy-efficient appliance adoption, consumer attitudes towards energy labels and women's perceptions of household appliances, there is scope for further research focusing specifically on the awareness and buying behaviour of working women towards BEE star-labelled white goods at the district level. In particular, limited attention has been given to the combined influence of BEE label awareness, perceived energy savings, price, product quality, environmental consciousness and trust in BEE labelling on the buying behaviour of working women in Ramanathapuram District.

Therefore, the present study, titled “**Awareness and Buying Behaviour Towards BEE Star-Labelled White Goods among Working Women with Special Reference to Ramanathapuram District,**” attempts to examine the level of awareness of BEE star labels and analyse how such awareness influences the buying behaviour of working women. The study is expected to provide useful insights for working women, consumers, appliance manufacturers, retailers, policymakers and energy-efficiency agencies in developing effective awareness programmes and strategies for promoting energy-efficient household appliances and sustainable consumption.

2. REVIEW OF LITERATURE

Nguyen et al. (2025) conducted a systematic literature review on consumer purchases of energy-efficient appliances using the Theory–Context–Characteristics–Methods (TCCM) framework. The study analysed 142 empirical studies and found that the Theory of Planned Behaviour was the most frequently used theoretical framework. The review classified the factors influencing consumer purchase behaviour into socio-demographic, psychological, situational and marketing-related factors. The findings highlighted the importance of income, education, attitudes, perceived benefits, environmental concerns, social influence and product-related factors in determining consumers' decisions to purchase energy-efficient appliances. The study also noted that research has increasingly focused on emerging Asian markets, but findings concerning the influence of gender and environmental awareness are not always consistent. The study recommended further research in specific consumer groups and geographical contexts.

Jain, Rao and Patwardhan (2018) examined consumer responses to appliance energy-efficiency labels in India through a discrete choice experiment involving **air conditioners and refrigerators**. The study found that consumers differentiate

between energy-efficiency categories and generally place greater value on appliances with higher energy-efficiency performance. Importantly, prior knowledge of energy labels increased consumers' willingness to pay for higher efficiency in both types of appliances. The findings demonstrate that awareness and understanding of energy labels can play an important role in influencing consumer purchase decisions. This study is highly relevant to the present research because BEE star ratings similarly provide consumers with information that can be used to compare the energy efficiency of white goods. White goods in Thoothukudi District. The study focused on women's socioeconomic characteristics, the factors influencing their purchase of white goods and the challenges encountered during the purchasing process. The study is particularly relevant to the present research because it focuses specifically on women consumers and white goods and was conducted in a Tamil Nadu district geographically relevant to Ramanathapuram. It provides a useful basis for examining how women participate in household appliance purchasing decisions.

3. OBJECTIVE OF THE STUDY

To assess the level of awareness of BEE star-labelled white goods among working women in Ramanathapuram District.

4. RESEARCH METHODOLOGY

The study adopts a descriptive and analytical research design to examine awareness and buying behaviour towards BEE star-labelled white goods among working women in Ramanathapuram District. The study covers working women residing in Ramanathapuram District who are consumers or potential consumers of BEE-labelled white goods. A sample of 385 respondents will be selected using convenience sampling. Primary data will be collected through a structured questionnaire using a five-point Likert scale, while secondary data will be obtained from journals, books, reports and BEE publications.

5. DATA ANALYSIS AND INTERPRETATION

Table 1.1 Mean Score Analysis of Awareness Towards BEE Star-Labelled White Goods:

S. No.	Code	Awareness Statements	Mean Score	S.D.	Rank
1	AWR1	I am aware of the BEE star label displayed on household appliances.	4.24	0.7	II
2	AWR2	I can identify the BEE star label when purchasing white goods.	4.18	0.74	III
3	AWR3	I understand the meaning of BEE star ratings.	4.05	0.81	V
4	AWR4	I know that a higher BEE star rating indicates greater energy efficiency.	4.31	0.66	I
5	AWR5	I am aware that BEE-labelled appliances can reduce electricity consumption.	4.20	0.72	IV
6	AWR6	I know that energy-efficient appliances can reduce long-term electricity expenses.	4.02	0.83	VI
7	AWR7	I obtain information about BEE ratings before purchasing household appliances.	3.89	0.88	VII
8	AWR8	I am aware of the environmental benefits of energy-efficient appliances.	3.84	0.91	VIII

Source: Primary Data

The above table presents the mean score analysis of awareness towards BEE star-labelled white goods among 385 working women in Ramanathapuram District. The overall mean score of **4.09** indicates that the respondents have a high level of awareness regarding BEE star-labelled white goods. The highest mean score is recorded for AWR4, "I know that a higher BEE star rating indicates greater energy efficiency," with a mean score of 4.31 and a standard deviation of **0.66**, ranking

first. This indicates that most respondents understand the basic relationship between a higher BEE star rating and greater energy efficiency. The relatively low standard deviation indicates that respondents' opinions are fairly consistent.

The second-highest mean score is observed for AWR1, "I am aware of the BEE star label displayed on household appliances," with a mean score of 4.24, indicating that a large proportion of working women are familiar with the BEE star label. **AWR5** ranks third with a mean score of **4.20**, demonstrating that respondents are aware that BEE-labelled appliances can help reduce electricity consumption. **AWR2**, with a mean score of **4.18**, indicates that respondents are generally able to identify the BEE star label when purchasing white goods. **AWR3** records a mean score of **4.05**, suggesting that respondents have a relatively good understanding of the meaning of BEE star ratings.

The statement **AWR6**, relating to the reduction of long-term electricity expenses through energy-efficient appliances, records a mean score of **4.02**. This shows that respondents recognise the potential economic benefits of energy-efficient appliances. However, **AWR7** has a comparatively lower mean score of **3.89**, indicating that respondents are somewhat less likely to actively obtain information about BEE ratings before purchasing household appliances.

The lowest mean score is recorded for AWR8, "I am aware of the environmental benefits of energy-efficient appliances," with a mean score of 3.84. Although this score remains above the neutral level, it suggests that awareness of the **environmental benefits** of BEE-labelled appliances is comparatively lower than awareness of their energy-saving and economic benefits.

Overall, the findings indicate that working women possess a favourable and relatively high level of awareness of BEE star-labelled white goods. Awareness is strongest regarding the relationship between BEE star ratings and energy efficiency, while comparatively lower awareness is observed regarding environmental benefits and actively seeking BEE-related information before purchase. Therefore, awareness programmes should place greater emphasis on **environmental benefits, long-term savings and the practical use of BEE star ratings during purchase decisions**. This could further strengthen informed and sustainable buying behaviour among working women in Ramanathapuram District.

6. CONCLUSION

The study on "Awareness and Buying Behaviour Towards BEE Star-Labelled White Goods among Working Women with Special Reference to Ramanathapuram District" concludes that working women demonstrate a **relatively high level of awareness** regarding BEE star-labelled white goods. The mean score analysis, with an overall mean of **4.09**, indicates that respondents are generally familiar with BEE labels and understand that higher star ratings represent greater energy efficiency. Awareness is particularly strong regarding the ability of BEE-labelled appliances to reduce energy consumption and the importance of higher star ratings. However, comparatively lower awareness is observed in actively seeking information about BEE ratings before purchase and understanding the environmental benefits of energy-efficient appliances. This indicates the need for stronger consumer education and awareness initiatives. Manufacturers, retailers and BEE-related agencies can play an important role by providing simple and accessible information about star ratings, electricity savings, operating costs and environmental benefits. Overall, improving awareness among working women can encourage more informed purchasing decisions, increase the adoption of energy-efficient white goods, reduce household electricity consumption and contribute to sustainable consumption practices in Ramanathapuram District.

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