



COGNIZANCE OF WORKING WOMEN TOWARDS ENERGY-EFFICIENT APPLIANCES IN RAMANATHAPURAM AN EXTENDED MODEL OF THE THEORY OF PLANNED BEHAVIOUR

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Abstract : The need of energy efficiency to address energy shortages and environmental issues has been highlighted. Due to technologically sophisticated electrical and electronic gadgets the energy demand has also been increased. Energy efficiency has been at the forefront of the energy policy agenda. The adoption of more energy-efficient appliances in the household sector is being driven by new technological inventions and growing environmental concerns related to current energy policies. Furthermore, the mandated star labelling programme and incentive design methods are increasing knowledge and motivation for their use. They are resulting in lower energy consumption and greenhouse gas emissions. In general, programmes aimed at improving the energy efficiency of household appliances are pursued by sustainable energy policies. One of the most significant ways to reduce electricity use is to purchase and operate energy efficient household appliances. Working women customers in the residential sector in India considered to be an active consumers of Energy efficient appliances. They require additional attention, as they are perceived to be less empowered in terms of information and decision-making authority. As a result, using the Theory of Planned Behaviour and its primary qualities, it is necessary to investigate working women's attitudes about star-labeled energy-efficient home appliances for their homes.

IndexTerms - Energy Efficiency, Star Labelling, Working Women, Environment, Planned Behaviour, Sustainability.

I. INTRODUCTION

Everyone understands the importance of energy-efficient white goods. It leads to lower energy consumption. As a result of innovative features and designs saved energy could be used to meet a country's essential development goals, we can save money and reduce harmful CO₂ emissions. With a share of 27 percentage, the residential sector is one of the major contributors to world energy consumption and CO₂ emissions. The goal of energy efficiency is to reduce the quantity of energy utilised and the carbon emissions produced by the appliances like heating, cooling and washing technologies.

Due to rapid electrification and a quick increase in the number of users, the residential sector in developing countries has seen a constant rise in energy demand. In India, it has made energy accessible to every citizens. Furthermore, due to the rising adoption of technologically advanced electrical and electronic appliances, the residential sector's energy demand has increased, particularly in metropolitan and semi-urban areas. Because of its size, the residential sector has received a lot of attention in policies aimed at

addressing challenges including fuel security, fossil fuel dependency, and climate change. The primary goal of these policies was to develop energy-saving programmes, such as the promotion of energy-efficient (EE) technologies, energy efficiency labelling, and household appliance regulations.

Energy Efficient Appliances in the Domestic Sector:

Energy conservation in the residential sector depends on consumer behaviour in terms of technology choices and routine actions. Consumers' technological preferences pertain to whether they choose to buy energy efficient or traditional equipment, whereas habitual activities refer to day-to-day acts such as turning off appliances when they are not in use. In comparison to habitual acts, the adoption of Energy Efficient Appliances (EEA) contributes more in terms of energy efficiency and sustainability. Furthermore, it is a one-time expenditure that does not necessitate ongoing customer effort.

Features in Common:

India is one of the Ten countries with an energy deficit, and lack of energy will have an impact on national growth and development in terms of GDP. In India, the Bureau of Energy Efficiency (BEE) has recognised nine residential electronic products with Star Labelling Programmes, including lamps, refrigerators, air conditioners, water heaters, televisions, computers, washing machines, ceiling fans, and water pumps. Using the Theory of Planned Behaviour, this study examines the awareness of working women towards energy saving home appliances.

The only goal of this Theory of Planned Behavior is to discover the direct psychological determinants of behaviour. It states that numerous elements such as attitude, subjective norms, societal norms, and perceived behavioural control influence behavioural intention. Consequently, it is critical to comprehend the above factors in order to study individual behaviour.

Attitude: It is a general assessment of a person's behaviour that leads to an unfavourable outcome.

Moral Norms: An individual's thoughts about completing a specific behaviour in an ethical circumstance are referred to as moral norms. It takes into account both social and environmental aspects.

Subjective Norms : It refers to the rules that people make up for themselves. The pressure to perform or not to perform is determined by societal pressure. Social norms or rules are the terms used to describe these behaviours.

Previous Purchase Behaviour: This is influenced by previous buying experiences and is one of the features that helps predict behavioural intentions more accurately.

Perceived Behaviour Control: This relates to how easy or difficult it is to do a behaviour, which is influenced by both external and internal factors.

OBJECTIVES OF THE STUDY:

- To study the socio economic profile of the selected working women consumers.
- To identify the factors influencing the working women in their purchase decision process by adopting Theory of Planned Behaviour.
- To study the factors influencing the purchase behaviour related to energy efficient household products by adopting attributes of Theory of Planned Behaviour

STATEMENT OF THE PROBLEM:

One of the most significant ways to reduce electricity use is to purchase and operate energy efficient household appliances. Following global efforts to improve energy efficiency and conservation, Indian Government has implemented energy efficiency and conservation measures under the BEE Star Labeling Programme. Understanding customer behaviour, intents, and awareness level of BEE-labeled energy efficient household appliances is critical to achieve the payback of these projects.

Working women, particularly those in charge of household resources, finance, and accounts, require these information in order to rate their energy use, make purchase decisions for energy-efficient items, and maintain control over their purchasing behaviour in the marketplace. Working women customers in the residential sector in India require additional attention, as they are perceived to be less empowered in terms of information and decision-making authority. As a result, using the Theory of Planned Behaviour and its primary qualities, it is necessary to investigate working women's attitude about star-labelled energy-efficient home appliances for their homes.

REVIEW OF LITERATURE :

Dr. K. Alex and Mrs. A. Maria Selvi (2016) in their article titled "A Study on Buying Decision of Consumers towards White Goods in Trichy City," found that family members influence the decision-making process in the purchase of various products, particularly high-value items such as Refrigerators, Washing Machines, and Air Conditioners. On the other hand, research has revealed that, both spouses have

a significant role in the purchase of high-value products, and these influences are influenced by a variety of elements such as Demographic, Psychological, Personal, Social, and Decision-making processes. In the current system of nuclear family formation, children's involvement has also been found. This research indicates that in general, the level of joint decision-making is quite high in purchase decision making process.

Priti Jha (2017) in her paper, “A Study of Customer Purchase Behaviour Towards Selected Consumer Durable (White) Products, (With Special Reference to Delhi NCR)”. The researcher has taken sample size of 150 respondents. The aim of this paper was to comprehend the concept of consumer durable (white) products, to study the socio-economic profile of the selected consumers and to identify the important attributes influencing consumer buying behaviour in the purchase of consumer durable (white) products. According to the findings, show-room location is not important in the case of all five products, and they also do not value credit facilities because they prefer cash purchases. For some of the respondents, price, energy efficiency, guarantee, and after-sales service are all very important attributes while purchasing durable products.

R.Karthika, Dr. N.VijaiAnand (2017) conducted “A Study on Consumer Buying Behaviour towards Selected White Goods with Special Reference to Tiruchirappalli District”. The study was descriptive in nature, and the data was gathered using well-structured online and offline questionnaire with a sample size of 500 respondents. The research was carried out in Tiruchirappalli area in Tamil Nadu. Major goal of the research paper was to discover the elements that influence purchasers' decisions about white goods purchases, as well as the importance placed on choosing the right retail location.

Dr. C. Kathiravan, V. Suresh (2019), in their research titled “An Investigation on Purchase Behaviour of Buyer White Durable Goods with Exceptional Reference to Chennai”, concluded that a customer purchases durable goods only when he or she has a need for it. They had analysed other factors such as quality, technology and pricing while making purchase decision process.

Shengyu Gu1, Yingwei Wu (2019) in their study titled, “Using the Theory of Planned Behaviour to Explain Customers' Online Purchase Intention”. This research study used TPB to explain the customers online shopping intentions. A literature review of the constructs of TPB: attitude toward behaviour/normative belief, subjective norms, and perceived behavioural control was done. Although the results of this study showed that consumers are open to online shopping and have high Attitudes, Subjective Norms, and Perceived Behavioural Control, it is impossible to rule out the possibility that, these scores would not apply to a group of consumers who are older, less educated, and have a lower income.

However, there is lack of study that looks at their planned behaviour in order to close the gap in the literature. This study uses the Theory of Planned Behaviour (TPB) to investigate their awareness in depth, encompassing attitude, social norms, moral standards, subjective norms, and perceived behavioural control.

III RESEARCH METHODOLOGY :

Quantitative methodology is used for the purpose of analysis of data. In order to acquire the data non - probability purposive sampling has been used. Primary data is acquired from the working women consumers survey, while secondary data is gathered from books, journals, magazines, reports, daily newspapers, and through internet. The information gathered from both sources is examined, modified, and tallied.

The questionnaire was administered in an structured, closed format. Both the questions and the responses were divided into two portions. The purpose of Section I is to gather general information about women who buy home appliances. Attitude, Social Norms, Perceived Behavioural Control, Moral Norms, Past Purchase Behaviour, and Buying Intention are the components of the Theory of Planned Behaviour.

IV ANALYSIS OF DATA:

Table 1
Demographic Profile of the Respondents:

S. No	Variables	Description	Frequency	Percentage
1.	Age (Years)	Between 21- 30 Years	21	30
		Between 31- 40 Years	29	42
		40 and above	19	28
2.	Educational Qualification	Under Graduate	57	83
		Post Graduate	7	10
		Professional	5	7

3.	Profession	Government employee	13	19
		Private employee	56	81
		Self employed	0	0
4.	Monthly Income	Rs. 15,000 – Rs. 20,000	38	56
		Rs. 21,001 – Rs. 30,000	21	30
		Rs. 30,000 and above	10	14
5.	No. of Members in Family	2 – 4 members	15	22
		5 – 7 members	46	67
		More than 7 members	8	11

Source : Primary Data

Framing of Hypothesis

The hypothesis were tested using simple correlation method. The summary of hypothesis testing and results is presented below.

Hypothesis 1 (H1): *There is no significant difference between age and attributes of planned behaviour.*

Table 2
Correlation between Age and Attributes of Planned Behaviour.

S.No	Attributes	Correlation
1.	Attitude	0.994
2.	Social Norms	-0.963
3.	Moral Norms	-0.300
4.	Perceived Behavioural Control	-0.408
5.	Past Purchase Behaviour	-0.772
6.	Purchase Intention	0.317

Source: Primary data

Inferences:

From Table 1 it is depicted that age has less impact on attributes of planned behaviour as only Attitude and Purchase Intention showed the positive value and attributes like social norms, moral norms, perceived behavioral control and past purchase behaviour has less impact.

Hypothesis 2 (H2): *There is no significant difference between educational qualification and attributes of planned behaviour.*

Table 3
Correlation between Educational Qualification and Attributes of Planned Behaviour.

S.No	Attributes	Correlation
1.	Attitude	-0.187
2.	Social Norms	0.541
3.	Moral Norms	0.999
4.	Perceived Behavioural Control	0.993
5.	Past Purchase Behaviour	-0.380
6.	Purchase Intention	0.813

Source: Primary data

Inferences:

From Table 2 it is depicted that educational qualification of the respondents have more impact on their attributes of planned behaviour as their correlation is closer to 1.

Hypothesis 3 (H3): *There is no significant difference between Occupation and attributes of Planned Behaviour.*

Table 4
Correlation between Occupational Status and Attributes of Planned behaviour

S.No	Attributes	Correlation
1.	Attitude	0.997
2.	Social Norms	-0.954
3.	Moral Norms	-0.268
4.	Perceived Behavioural Control	-0.378
5.	Past Purchase Behaviour	-0.793
6.	Purchase Intention	0.349

Source: Primary data

Inferences:

The above table shows positive impact of occupational status of the respondents on attitude and purchases intention of the sample respondents other than that social, moral norms, perceived behavioural control has adverse impact.

Hypothesis 4 (H4). *There is no significant difference between income level and attributes of planned behaviour.*

Table 5
Correlation between Income Level and Attributes of Planned Behaviour.

S.No	Attributes	Correlation
1.	Attitude	0.177
2.	Social Norms	0.204
3.	Moral Norms	0.932
4.	Perceived Behavioural Control	0.883
5.	Past Purchase Behaviour	-0.686
6.	Purchase Intention	0.968

Source: Primary data

Inferences:

From the above table it is clear that income of the respondents plays a vital role in their planned behaviour as all the attributes except one shows positive impact on planned behaviour

Hypothesis 5 (H5). *There is no significant difference between family size and attributes of planned behaviour.*

Table 6
Correlation between Family Size and Attributes of Planned Behaviour.

S.No	Attributes	Correlation
1.	Attitude	0.992
2.	Social Norms	-0.967
3.	Moral Norms	-0.315
4.	Perceived Behavioural Control	-0.423
5.	Past Purchase Behaviour	-0.762
6.	Purchase Intention	0.302

Source: Primary data

From table 6 it has been found that the family size of the respondents have very less impact on planned behavioural attributes.

Table 7
Correlation between Socio Economic Factors and Attributes of Planned Behaviour

S.No	Attributes	Correlation				
		Age	Education	Occupation	Income	Size of the Family
1.	Attitude	0.994	-0.187	0.997	0.177	0.992
2.	Social Norms	-0.963	0.541	-0.954	0.204	-0.967
3.	Moral Norms	-0.300	0.999	-0.268	0.932	-0.315
4.	Perceived Behavioural Control	-0.408	0.993	-0.378	0.883	-0.423
5.	Past Purchase Behaviour	-0.772	-0.380	-0.793	-0.686	-0.762
6.	Purchase Intention	0.317	0.813	0.349	0.968	0.302

Source: Primary Data

Inferences:

From the above table it is clear that, socio economic factors like age, educational qualification, occupational status, income and family size have fully correlated with purchase intention followed by attitude and it has moderate relationship on social norms, moral norms and perceived behavioural control and it is negatively correlated with past purchase behaviour

V RESULTS AND DISCUSSION:

The correlation method was used to generate and analyse five working hypothesis. The findings revealed that selecting energy efficient household appliances is influenced more by one's attitude and purchase intention. Moral and subjective norms were found to have no effect on buying intent. The results suggested that adding more features to the TPB framework increases its explanatory power. It indicates that, the extended model can be used to examine purchase intent. This study expands on previous research by examining white goods buyers' attitudes regarding energy-efficient appliances. attitude, social norms, moral norms, perceived behavioural control, past purchase behaviour, and purchase intention were combined with socio-economic aspects of the respondents to frame the hypothesis of planned behaviour.

VI CONCLUSION:

India is one of the world's least energy-efficient countries, and its electrical supply is in jeopardy. Household appliances account for the majority of household energy use, and they also account for over 70% of household carbon dioxide emissions. Increased purchasing and usage of energy efficient appliances is one strategy to cut emissions and conserve energy. Working women are progressively encouraging the use of energy saving appliances, reflecting their good attitude toward such appliances and their positive experience with them, according to the findings. It is once-in-a-lifetime opportunity to encourage people to use energy-efficient products and equipment in their homes. Despite its limitations, this study suggests a direction for future research in the field of better understanding consumer behaviour when it comes to energy-efficient appliances, particularly among working women.

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