

# Exploring the causal association among expertise level, preference buying and post-purchase satisfaction for organic products in India

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## Abstract

The purpose of the current study is to examine how consumers' preference-buying behaviours are influenced by their level of expertise and, ultimately, if preference-buying results in post-purchase pleasure. We conduct an empirical analysis based on the views of green product users. For our case study, we take organic foods into account. Environment protection has received more attention in recent years. Organizations have therefore placed a strong emphasis on creating green products. Consumer behaviour has changed in relation to green items as well. One of the focal points for strategic organisational decision-making has been green marketing. However, it is crucial to ask about how consumer behaviour is changing in this setting. In this study, we aim to find out answers to the following research questions such as: Are the customers be satisfied after purchasing the green products? Are the expertise level (EL) of the consumers is compelling for preference buying behaviour (PBB)? Is EL is acting as the predecessor of PBB? RQ4: Does PBB meets with post-purchase satisfaction (PPS) of the consumers? RQ5: Is gender acting as an influencer in the relationship of EL, PBB and PPS? 104 individuals from a variety of demographic backgrounds took part in our survey. To test our ideas, we discover the Kendall's tau-b and Somers' d. The link between EL, PBB, and PPS is supported by statistical analysis results. Additionally, we see that the link between EL, PBB, and PPS is influenced by women's gender.

Keywords: Consumer behaviour, Organic products, Green marketing, Somers' d, Kendall's tau-b, Preference buying, Post-purchase satisfaction

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## 1. Introduction

Environmentalism throughout the last two decades has replicated consumers' acceptance of sustainable consumption. It is anticipated that this raised consciousness and attentiveness in sustainable consumption is affecting consumer purchasing behaviour. Prior literature talk about were 6.98 crores hectares of certified organic agricultural property in 2017 (Willer et al., 2018). In terms of sustainability, harmonizing the ecosystem

(ecological), generating the revenue (economic), and maintaining social equilibrium (people) is of utmost importance (Vermeir and Verbeke, 2008; Chung, 2020). But in spite of the environmental preservation concerns, the marketers are not profoundly successful in selling green product because of the inconsistent nature of ecologically anxious customers (Ha and Janda, 2012; Gleim et al., 2013). Previous studies (Joshi and Rahman, 2015; Groening et al., 2018) have used a wide summary of the theories and variables associated with green consumption and green behaviour. But there is a discrepancy between what customers announce and their actual purchase behaviour in terms of sustainability. The former researchers have termed this as green intention-behaviour gap (Frank and Brock, 2018), or the motivation-behaviour gap (Groening et al., 2018) or green gap (Johnstone and Tan, 2015). So thinking "green" is progressively at the front of customers' mind, but they scuffle with their involvement in the lifecycle of the items with an ecological impact. For an instance, one research explored that thirty percent customers from UK claim to be extremely worried about ecological issues, but they find it difficult to act on this concern by purchasing organic products (Young et al., 2010).

Fundamentally, ecological concern is a direct predictor of particular ecological behaviours, which in turn are anticipated by consumer attitudes toward specific behaviours (Ajzen and Fishbein 1977). There is a progressing rising trends worldwide towards producing and consuming organic food (Sahota, 2009; Nekmahmud and Fekete-Farkas, 2020). One of the important factor behind the customers' ecological concern is country of origin (Rana and Paul, 2017). Empirically it was shown by the researchers that the customers from developed countries are more towards environment than those from developing. Branding empower the customers to evaluate the product quality and identify the makers accountable for their products (Koehn, 2001). In 2017, the market for organic food and beverages was close to 97 billion USD (Sahota, 2018). On the other hand, some studies contended that country of origin aren't the key parameter for consumers' brand assessments especially because of the increasing borderless world (Wheeler et al., 2013). In 2020, the world-wide green technology and sustainability market valuation was \$10.32 billion and it is expected to reach \$74.64 billion by 2030 (Green Technology and Sustainability Market Statistics: 2030, 2021).

. One report suggested that there is approx. 25 percentage increments in Gen X (born from 1965 to 1980) consumers' preferred sustainable brand shopping and also hike in willingness to pay by 42 percentage. The report also shows that consumers from all the generations are now more enthusiastic to opt for extra sustainable selections (Forbes, 2022). The USA is the country that consumes the most organic food, with of 48.7 billion USD in 2017 in retail and a per capita consumption of 137 USD (Sahota, 2018). Another study shows that young generation are more prone towards novel and advanced thoughts than older (Ottman et al., 2006).

Black Box model of consumer behaviour, which is also referred to as the Stimulus-Response model states that the customers are both sole thinkers and problem solvers in responding to a variety of internal and external stimuli to make a purchase decision. They combine external stimuli (e.g.-marketing stimuli and others) with their pre-existing knowledge like-expertise level, beliefs, knowledge, motives, etc. before making any purchase decision. Now after taking the buying decision they react in terms of their choice of product, brand, timing, amount, etc. Expertise is described as the capability to accomplish product-oriented responsibilities effectively (Alba and Hutchinson, 1987). There is a positive correlation between product familiarity with consumer expertise.

On the other hand, post-purchase behavioural intention is the future assurance of the customer towards buying a product. Also as per the reinforcement theory, satisfied results create positive post-purchase behaviour like-positive word of mouth, affirmative recommendation, etc. Hence, it is very significant to understand, how post-purchase behaviour meets with post-purchase satisfaction (Chen and Chen, 2010). However, it lacks research in terms of the direct and indirect influences of expertise level and post-purchase satisfaction level with buying behaviour mostly for organic products, which has been examined in this paper. In this paper, we have integrated three important behavioural aspects, i.e.-expertise level, preference buying behaviour, and post-purchase satisfaction to understand the behavioural fluctuation in terms of buying behaviour of green products. Usually,

green purchase research categories the customers into two segments: those who buy, and those who don't (ElHaffar et al., 2020). But there is a great dearth of research, for defining the appropriate practice and procedure to be applied in the area of environmental consumption, it is essential to understand the nature of customers from the point of view of expertise level, intention, satisfaction level, and behaviour towards organic products. A closer examination of existing literature gives out the fact that less number of researches in the area of organic products from the point of view of preference buying behaviour, expertise level, and its influence on post-purchase satisfaction. This study tries to fill the research gap and comprehend the effect of expertise level, preference buying, and satisfaction level in the organic product market with the help of a sample from a developing market, India.

The objective of this paper is to investigate the impact of expertise in preference buying behaviour (PBB) of the consumers and also to understand the relationship between preference buying and post-purchase satisfaction (PPS) along with the influence of gender. The researchers' conclusions aim to provide expertise to the advancement of marketing studies regarding buying intention and post purchase satisfaction of green products. Additionally, it is anticipated to assist marketers that are focusing on the green market in developing their plans. This paper is guided by the following research questions:

- RQ1: Are the customers be satisfied after purchasing the green products?
- RQ2: Are the expertise level (EL) of the consumers is compelling for preference buying behaviour (PBB)? Is Expertise Level (EL) is acting as the predecessor of PBB?
- RQ4: Does PBB meets with post-purchase satisfaction (PPS) of the consumers?
- RQ5: Is gender acting as an influencer in the relationship of EL, PBB and PPS?

The extant literature show that there is a green awareness around the community and the customers are now showing interest towards organic products. As an outcome of this, the companies are also focusing on green implementation. All these alterations and responses aim to improve the organic purchase behaviour of the consumers. However, we observe that realistic studies on post-purchase satisfaction in connection with purchase behaviour and expertise level of green purchase do not exist. Therefore, the expertise level, preference buying and post-purchase satisfaction of organic food remains considerably less explored area, which reflects the novelty of this paper and also becomes an interesting subject to be explored in detail. Further, the present paper utilizes a non-parametric approach (NPA) to discern the associations of EL, PBB and PPS. NPA is seen relatively lesser used in social science research concerning consumer behaviour for green products.

The following section defines literature review, research gap and contributions of the paper. The Methodology adopted and data analysis results have been explained in sections 3 and 4. Finally section 5 and section 6 describe the implications and future research suggestions of the study.

## **2. Literature review**

The succeeding sub-sections deliver a theoretical grounding, based on which we develop the hypotheses for this paper.

### *2.1 An Overview of Green Consumer Behaviour*

Marketing research on ecological matters has progressed through various phases since 1960 when environment movement concentrated responsiveness on pollution and energy prevention (Straughan and Roberts, 1999). In the past decades, there has been a growth in the production and consumption of foods that are grown organically. Consumer demand for agricultural products generated through environmentally friendly methods, particularly for organic produce, has increased (Chinnici et al., 2002). Organic foods are seeming as healthier than traditional substitutes as pointed out by the earlier researcher. However, the demand varied across domestic territory

(Shabbir et al., 2020). In organic product segment, consumer trust is a sensitive topic because customers cannot confirm whether a product is organic even after consumption (Gelderman et al., 2021). Credibility product marketplaces such as the organic food market exhibit a significant degree of information discordance as the customers are unable to judge the originality of it (Darby and Karni, 1973). According to various surveys, some customers are disbelieving the reliability of organic products, which kept them away from purchasing more organic products (Sharma, 2021). One research has suggested that companies with an organic labelling initiatives should emphasis in generating consumer awareness and trust through organic certification logos (Janssen and Hamm, 2012; Szabo and Webster, 2021). Maniatis (2016) recognises an array of parameters impacting customers towards organic products like understanding and consciousness, green awareness and commitment. However that research also talks about the absence of structural concepts between these parameters & also with decision making procedure.

The “green products” can be defined as the one which not contaminate the earth or deprecate natural resources and can be recycled or conserved (Shamdasani et al., 1993). This includes the usage of recyclable materials, biodegradable elements and components in designing or manufacturing products (Blengini et al., 2012). The main group of green products contains in organic products (Thøgersen, 2010). The consumer has definitely responded to the dissemination of organic products. Consumption of organic products accomplish the customers demand for natural and sustainable product (Janssen and Hamm, 2012). A research of Hamzaoui et al. (2009) showed that the customers who are buying organic food consider it as healthier, tastier, and ecological and through this they display their affection towards animal prosperity along with showcasing human and traditional beliefs. Zhang et al. (2020) underpins that purchasing organic product is lifestyle selection for eco-friendly customers.

"Sustainable consumption," as per the Norwegian Ministry for the Environment (1994), is “the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, of toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations”.

## 2.2 Organic Product Market in India

The organic markets of developing economies are in their infancy though significant portion of this is from developed countries. The developing country like India is one of the world's fastest-growing economies (The World Bank, 2021) and has the sixth-largest food and grocery market in the world (IBEF Report, 2021). In India the organic food market has started blossoming from its nascent stage. Another literature argues that prior the introduction of the Green Revolution in the early 1960s, organic consumption was a part of Indian lifestyle (Kushwah et al., 2019). However, in 2017 per capital consumption on organic food in this country is just at 0.21 USD, where the average value of the same is at 12.8 USD in 2018 globally (Sahota, 2018). This is because that in this country organic production is pre-dominantly export-driven (World Food and Agriculture, Statistical Yearbook, 2022). The developing countries is having about one-fourth of the whole organic agricultural land and manage a prominent 89% of the entire organic producers worldwide (Willer and Lernoud, 2017). Currently India ranks itself within topmost five nations in terms of holding major region of organic agricultural land and also has become one of the highest organic producers globally with a contribution of 48 percent (Willer et al., 2022). Between 2019-20 and 2021-22, an overall of 1,978,460.38 million tonnes of organic products of amount around \$2,480.24 million were exported, with around 50 per cent the United States while 37 per cent to the European Union (Hindu, 2022). Since Covid-19 outbreak, there is an increase demand of organic products in the domestic and overseas markets.

Much of the prior literature has talked about numerous concerns relating to organic food and customers from the past ten years. The area of researches mainly focuses on the profiles organic consumers, attitude, intention, motivations behind organic food purchase etc. mostly in the United States and Europe and a less quantity of

empirical researches in Asian countries like Iran, Jordan, Pakistan, Vietnam etc. A limited number of empirical studies has been observed in India and very less in the area of interplay between expertise knowledge, preference buying and post purchase satisfaction. Subsequently, the present research efforts to address this research gap.

### *2.3 Expertise Level (EL) and Preference Buying Behaviour (PBB)*

The study of Bang *et al.* (2000) reveals that the customers anxious towards environmental protection displays more preparedness to pay extra for eco-friendly products than those who are lesser worried. The study of Barari *et al.* (2020) revealed that customers' experience level, functional characteristics and product excellence features as the principal aspects before opting for a buying conclusion. A considerable prominence on ecological anxiety and knowledge impacting green behaviour has considered as vital (Lim *et al.*, 2020b). The research of Paul *et al.* (2016) explains the emotional and mental processes of consumers' decision making & willingness to purchase green products through consumer behaviour models like Ajzen and Fishbein's (1975) Theory of Reasoned Action (TRA) and Ajzen's (1991) the Theory of Planned Behaviour (TPB). Research of Green advertisement and labelling Lim *et al.* (2020a) suggests green advertisement and eco-labelling as significant publicity approaches to generate the environmental consciousness. In Asian countries the association between perceived risk and buying behaviour is found as weak as compared with European countries (Li *et al.*, 2020).

Consumer behaviour can be classified based on cognitive and behavioural aspects. The cognitive approach is based on knowledge, beliefs, and meaning which the customers develop from their experience, stored in their memories (Peter *et al.*, 1999). The theory of trying (Bagozzi and Warshaw, 1990) stipulates a framework where the behaviour is expected to be led by a sequence of previous tries. Thus it considers the frequency and regency of past attempts as elements that support for augmenting the analytical power of behaviour. So according to this model trying is an outcome of the intention of past trying and the regency of past trying. Blending the theory of trying, and the cognitive perspective of consumer behaviour, this study posits that frequency of past trying, consumers' product knowledge, self-knowledge, expertise level can build up the links with Preference Buying Behaviour.

Customers with good expertise levels utilise their attribute-oriented thoughts while exploring new products of different brands to recognise the brands in a product group (Vigar-Ellis *et al.*, 2015). This is unlike novice consumers, who use category-based affective processing and high satisfaction and brand loyalty. Customers with expertise levels have the tendency to recognise every brand of products and they can understand the product utilities among the brand (Chang *et al.*, 2021). Thus grounded on the above discussion, it is hypothesized that:

H<sub>1</sub>: There is a significant association between Expertise Level (EL) and PBB

H<sub>2</sub>: Expertise Level (EL) leads to PBB

### *2.4 Preference Buying Behaviour (PBB) and Post Purchase Satisfaction (PPS)*

One of the most favourable frameworks for assessing customers satisfaction is the Expectancy-Disconfirmation Paradigm model (Oliver, 1980). It is obvious that the satisfied customers have high re-purchase intention than dissatisfied one and involve in affirmative word-of-mouth (Wang and Liao, 2007). This model is based on the concept that the customers buy goods and services with pre-purchase expectations about an expected performance. The expectation confirmation happens when there is no difference between expectations and outcomes. The situation is reversed for disconfirmation. The value-percept disparity theory (Westbrook and Reilly, 1983) suggested that the disconfirmation of expectations have a greater impact effect on satisfaction than the discrepancy between value and perceptions. According to this theory, satisfaction is an emotional reaction, which is promoted by a cognitive evaluation procedure, where the perceptions of any goods and services are equated with customers' values, needs, wants and desires. Customer perceptions of performance and the significance of

the attribute have an impact on satisfaction as per Importance-Performance Model (Martilla and James, 1977). The repurchase intentions generate loyalty from a behavioural perspective, while attitudinal loyalty focuses on the emotional bond with solid preference for a definite brand (Uncles et al., 2003). In the post-purchase evaluation process, if the customers are in the view that the performance of the goods or services are better than expected, then the satisfaction level is also higher (Yeh and Li 2009). So it can be observed that majority of these theories recommend that satisfaction is a relative concept and mediated in relation to a standard. This is study we want to check the relationship between preference buying behaviour with post purchase satisfaction.

He et al. (2016) using the "Consumer Choice Theory" establishes how economic encouragements effect why customers should and should not opt for green activities. In turn Rahnama and Rajabpour (2017) validates using the Theory of Consumption Values (Sheth et al., 1991) that customer consumption has various dimensions like value, appeal, sentiments, ecological effect etc. Anojan and Subaskaran (2015) based on their empirical research achieves in the conclusion that a significant positive relationship exists between consumer's preference on purchase behaviour. Former researchers have identified gender discrimination in ecological motivations and activities in Western countries (Agarwal, 2000; Liao, 2020). He also opposes that females' social networking must establish a significant base for ecological combined power.

Higher degree of post-purchase satisfactions are important for any business. Several papers have exposed that it is more expensive to attract a new customer than keeping a prevailing one (Tien et al., 2020). German, American and Malaysian customers believe data provided on the labelling while French customers satisfaction depend on the touch and appearance of product packaging (Herbes et al., 2020). However, the extant literatures lack the evidence regarding the association between preference buying behaviour with post purchase satisfaction. So to bridge this gap, it is proposed to check that:

H<sub>3</sub>: PBB is significantly associated with PPS

H<sub>4</sub>: PBB leads to PPS

### *2.5 Gender, Expertise Level (EL) Preference Buying Behaviour (PBB) and Post Purchase Satisfaction (PPS)*

Globally organic consumption is on the upswing direction with the expanding consumer awareness. Though gender effects are mainly unspoken regarding organic product consumption because of inconsistency in results though gender plays an important role in product conclusions and choices (Smith and Floro, 2020). Former researchers stated that female consumers have shown a better consumption pattern of organic products than males (Magnusson et al., 2001). Similarly, for females, there is a strong positive relationship between obligation and purchasing behaviour but no relationship between gratitude and purchasing. For males gratitude is linked with purchasing while obligation is not (Kolyesnikova et al., 2009). Females exhibit additional positive effects and intensity in organic purchase (do Prado and Moraes, 2020). On the contrary, Tsakiridou et al. (2008) argued that gender has shown no difference in consumption patterns. Likewise, gender is not moderating the relationships between perceived usefulness, perceived ease of use, subjective norm, and perceived credibility (Kim, 2016). On the other hand, researchers suggest that gender differences can impact green product consumption (Brough et al., 2016), organic food quality and purchase (Ureña et al., 2008), and purchasing intention toward organic food (Gundala et al., 2022).

Women should have a stronger ethic of care for others, including the environment, when compared to men (Zelezny and Bailey, 2006). Past researchers have evidenced from Western sample that females showcase extra positivism towards environment (Tikka et al., 2000; Mostafa, 2007). Zelezny et al. (2000) have showed in their research that females are having advanced levels of professed personal responsibility towards the protection of environment. The same is also supported by the research of De Silva and Pownall (2014), who argued that women

is having an important part, associated to men, in creating positive standards in communal well-being also towards lessening carbon discharge and those females are putting utmost value on “going green”.

Accordingly, the subsequent hypotheses are also formulated:

H<sub>5</sub>: Gender has a significant influence on the association between EL and PBB

H<sub>6</sub>: Gender has a significant influence on the association between PBB and PPS

## 2.6 Research Gap

It is crucial to do the study on green purchase behaviour in India because of the four factors, which are- India’s largest economy, India’s large customer base, India’s growing population and also not explored area of Indian’s green purchase behaviour (Paul, Modi and Patel, 2016). Another research also pointed out about less number of publications in green purchase in Indian subcontinent (Singh and Gupta, 2013) in spite of Indians upper Greendex score. Greendex Report of 2012 showed that Indian consumers have more Greendex value than that of China, Brazil, Russia, Germany, Canada, Australia and America. It important to study post-purchase satisfaction of green products because consumers’ involvement with the green products is not restricted to the expertise and preference buying is only. Also, few studies have examined gender effects on perceived seriousness of environmental problems. Are the customers be satisfied after purchasing the green products? Are the expertise level (EL) of the consumers is compelling for preference buying behaviour (PBB)? Is EL is acting as the predecessor of PBB? Does PBB meets with post-purchase satisfaction (PPS) of the consumers? Is gender acting as an influencer in the relationship of EL, PBB and PPS? These areas have not been addressed by former research because most of it concentrated on the analysis rather than the buying of green products. One study shows that that going green purposely (vs. accidentally) indications to diminished purchase behaviour (Newman et al., 2014). Contradictory, some other studies explains that green product characteristic have a positive influence on product fondness under few circumstances like status motive (Griskevicius et al., 2010). When considered collectively, these results are focused on the purchasing decision and do not provide insight into the entire impact of green products on consumer satisfaction or the fundamental mechanism.

## 2.7 Theoretical framework of the study

Based on the aforesaid literature studies, the following research model has been constructed (Figure 1).

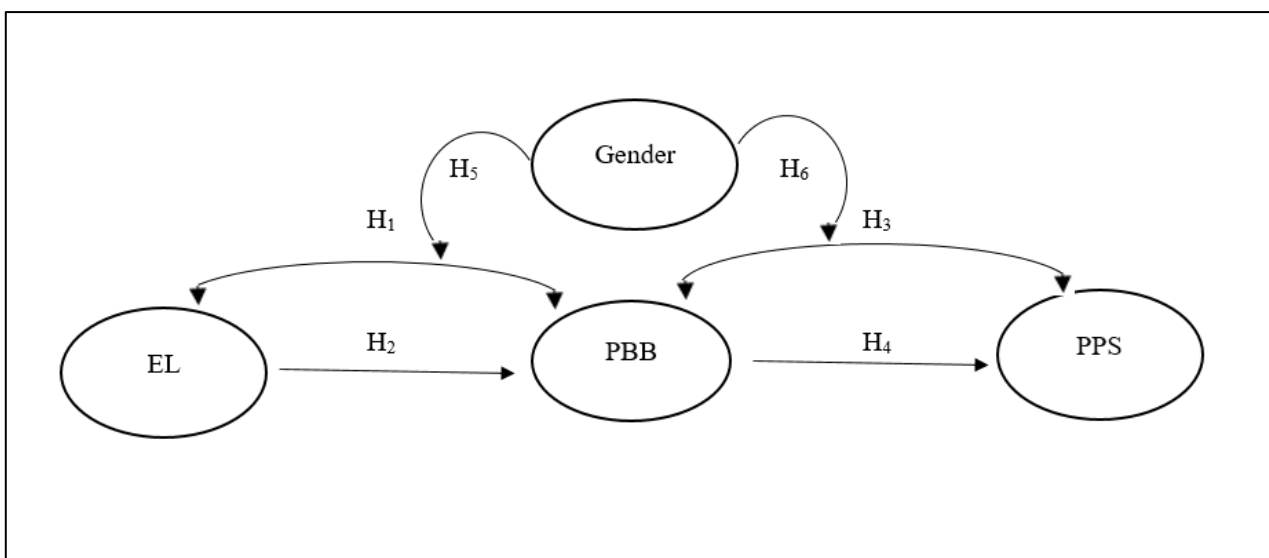


Figure 1. Research Model

### 3. Data and Methodology

The present study is an empirical research, which is the information resulting from real observations. Five steps have been followed in this study as suggested in Flynn et al. (1990). Figure 2 portrays the process. In the first phase literature review is done to put on the theoretic circumstantial of this research. In The second phase research design has been focusses. In the third phase data collection method has been designed; this paper considers using a structured questionnaire for the purpose of the data collection. The fourth phase is the data collection stage through questionnaire emailing. The fifth step is selecting an appropriate statistical instrument for data interpretation and reporting is done; in the current research, SPSS software is used to test the hypothesis.

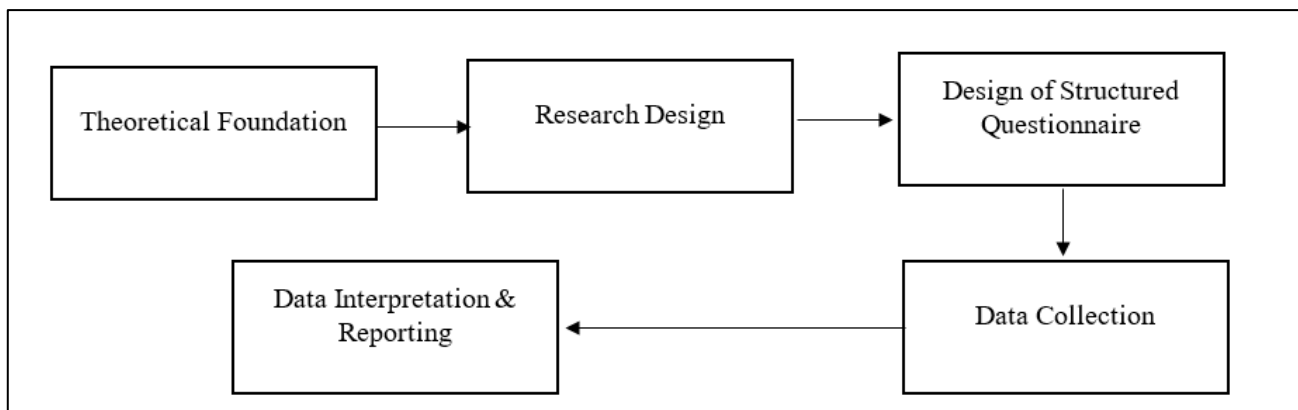


Figure 2. Flow of the research

#### 3.1 Demographic characteristics of the respondents

The perfect sample for this research involves of adults (age 18 or over) only. Under organic background research it is very problematic to recognise and follow minors because of the theoretic intricacy. Therefore, the data have been collected from the adults only through a structured questionnaire via Google Form. This research has try to cover an extensive geographical area, and for this motive online mode is selected to attend a large number of respondents across India in an economical way. The sample size requirement for this paper is decided based on the commendation of Hair et al. (1998). Based on then reference of a preferred level of 15–20 observations per variable this study has kept a sample size of 104 respondents based on the four constructs (age, Expertise Level, Preference Buying and Post-Purchase Satisfaction).

From descriptive statistics, Table 1 summarized that majority of the respondents in sample are female, married, having education level either high school or diploma and a monthly income between Rs. 10,000 – Rs. 25,000 per person. Most of the sample fell in the 26–40 age group.

#### 3.2 Statistical Analysis

In the present paper we have conducted non-parametric statistical tests to examine the associations among EL, PBB and PPS and to discern the impact of gender. The tests are briefly described below.

##### a) Somers' d

Somers' delta, aka Somers' d is a non-parametric test that examines the degree and nature (direction) of association between two ordinal variables, X (independent or predictor) and Y (dependent or outcome). Somers' d is a form of Kendall's  $\tau_a$ . Given the observations for X and Y, the estimated value of Somers' d is the indicator of the effect of X on Y. The association is based on concordance and discordance. "Concordance" implies that the change within pairs of sessions for X and the corresponding change in Y are in the same direction. "Discordance" infers that the changes are in opposite directions. Somers' d is interpreted in terms of proportional reduction in



error, i.e., it indicates given the changes in the value of X, how much is the improvement in predicting Y. The higher is the value (movement towards -1 or +1), the better is the predictive capability of the model (Newson, 2002, 2006, 2010). The main assumption behind this test is that there should be a pair of ordinal variables: one dependent and one independent. Somers' d is a comparatively better and stable measure for binary dataset (Metsämuuronen, 2020). The null hypothesis is there is no association between X and Y.

Somer's D can be calculated using the succeeding formula:

$$\text{Somers' D} = (N_C - N_D) / (N_C + N_D + N_T) \quad (1)$$

- $N_C$ : The number of concordant pairs (i.e.- the number of pairs that rank the same),
- $N_D$ : The number of discordant pairs (i.e.-the number of pairs that don't rank the same),
- $N_T$ : The number of tied pairs.

Table 1. Sample Characteristics

Variable	Categories	Percentage	Frequencies*
Gender	Female	57.69	60
	Male	42.31	44
Age	18-25 Years	21.15	22
	26-40 Years	56.73	59
	41-55 Years	16.34	17
	56 Years and above	5.78	6
Marital Status	Single	36.54	38
	Married	52.88	55
	Divorced/Widow	10.58	11
Employment Status	Full-time job	18.27	19
	Part-time job	14.42	15
	Student	14.42	15
	Housewife	14.42	15
	Unemployed	14.42	15
	Business	24.04	25
Education	High School	23.08	24
	Diploma	23.07	24
	Graduate	21.15	22
	Post-Graduate	21.15	22
	Doctorate	11.54	12
Personal Income -Monthly (INR)	INR 10000 or below	24.03	25
	INR 10001- INR 25000	34.62	36
	INR 25001-INR 50000	24.04	25
	INR 50001- INR 75000	11.54	12
	INR 75001 and above	5.77	6

\* The percentages are calculated based on total usable sample of 104

#### b) Kendall's tau-b

Kendall's  $\tau_b$  (tau-b) is a statistic that measures the non-parametric rank correlation among two random variables (of non-interval ordinal type). The Kendall's  $\tau_b$  is one of most widely applied non-parametric tests in social science research. The statistic Kendall's  $\tau_b$  is the difference between the probabilities of concordance and discordance of the independent pairs based on the observations drawn from the distributions and indicates the average likelihood dependence. The values of  $\tau_b$  lies between -1 to +1 depending upon the degree and nature of agreement or association between X and Y. The null hypothesis assumes that there is no association between X

and Y (Sen, 1968; Wilson, 1969; Bolboaca and Jäntschi, 2006; Fredricks and Nelsen, 2007; Brossart et al., 2018; Biswas, 2020a, 2020b; Nowak and Konietschke, 2021).

Kendall's Tau can be evaluated based on the following formula:

$$\text{Kendall's Tau} = (C - D / C + D) \quad (2)$$

- C: The number of concordant pairs,
- D: The number of discordant pairs.

#### c) Goodman–Kruskal gamma

The Gamma ( $\Gamma$ ) coefficient, likewise Spearman's  $\rho$ , Kendall's  $\tau_b$  and Somers' d, also measures the degree of association between two ordinal variables. However,  $\Gamma$  is a directional correlation coefficient that does not depend on the identity of the variables X and Y (as predictor and outcome). It is preferred than  $\tau_b$  and  $\rho$  in case there is many tied observations in the dataset. The null hypothesis states that there is no correlation between X and Y (Somers, 1962; Bolboaca and Jäntschi, 2006; Metsämuuronen, 2021).

Goodman and Kruskal's gamma is calculated based on the following formula:

$$\text{Goodman–Kruskal gamma} = (N_C - N_D) / (N_C + N_D + N_T) \quad (3)$$

## 4. Results

In this section, we briefly present the summary of the findings of the non-parametric tests carried out to discern the interrelationship between EL, PBB, and PPS and the influence of gender.

### 4.1 Hypothesis Testing: interrelationship between EL and PBB ( $EL \rightarrow PBB$ )

Table 2 displays the interrelation between EL and PBB.

Table 2. Case Processing Summary ( $EL \rightarrow PBB$ )

		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
		104	100.00%	0	0.00%	104	100.00%

From the above table, it is seen that there is no missing value in the observations.

Table 3 and Table 4 highlight the relation between EL and PBB and PBB and PPS respectively.

Table 3. Directional Measure ( $EL \rightarrow PBB$ )

		Value	Approximate Significance
Somers' d	Symmetric	0.294	0.000
	Dependent: PBB	0.306	0.000

Table 4. Test for Association of PBB and PPS: Symmetric Measure

	Value	Approximate Significance
Kendall's tau-b ( $\tau_b$ )	0.295	0.000
Gamma ( $\Gamma$ )	0.392	0.000

From the above table of symmetric measure, it is evident that there is a significant association between EL and PBB. However, the association is relatively moderate as the values of  $\tau_b$  and  $\Gamma$  are not high. Further, from the table of the directional measure, it is observed that PBB holds statistically significant dependency on EL as approx. sig. (p-value)  $\ll 0.01$ . The guess on PBB may be improved by 30.6 percentage given the information about EL. Therefore, the dependency is moderate.

Hence, we conclude that the hypothesis  $H_1$  and  $H_2$  are supported.

4.2 Hypothesis Testing: interrelationship between PBB and PPS ( $PBB \rightarrow PPS$ )

Table 6, 7 and 8 exhibit the association between PBB and PPS.

Table 5. Case Processing Summary ( $PBB \rightarrow PPS$ )

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
104	100.00%	0	0.00%	104	100.00%

From the above table, it is seen that there is no missing value in the observations.

Table 6. Directional Measure ( $PBB \rightarrow PPS$ )

		Value	Approximate Significance
Somers' d	Symmetric	0.35	0.000
	Dependent: PPS	0.334	0.000

Table 7. Test for Association of PBB and PPS: Symmetric Measure

	Value	Approximate Significance
Kendall's tau-b ( $\tau_b$ )	0.351	0.000
Gamma ( $\Gamma$ )	0.460	0.000

From the above table of symmetric measure, it is evident that there is a significant association between PBB and PPS. However, the association is relatively moderate as the values of  $\tau_b$  and  $\Gamma$  are not high. Further, from the table of the directional measure, it is observed that PPS holds statistically significant dependency on PBB as approx. sig. (p-value)  $\ll 0.01$ . The guess on PPS may be improved by 33.4 percentage given the information about PBB. Therefore, the dependency is moderate.

Hence, we conclude that the hypothesis  $H_3$  and  $H_4$  are supported.

4.3. Hypothesis Testing: Influence of gender on the interrelationship between EL and PBB ( $EL \rightarrow PBB$ )

Table 8 and Table 9 show the relationship between EL and PBB.

Table 8. Influence of Gender on the Directional Measure ( $EL \rightarrow PBB$ )

Gender	Statistic	Direction	Value	Approximate Significance
Female	Somers' d	Symmetric	0.317	0.004
		Dependent: PBB	0.327	0.004
Male	Somers' d	Symmetric	0.207	0.121
		Dependent: PBB	0.211	0.121

Table 9. Influence of Gender on the Association between EL and PBB

Gender	Statistic	Value	Approximate Significance
Female	Kendall's tau-b ( $\tau_b$ )	0.317	0.004
	Gamma ( $\Gamma$ )	0.404	0.004
Male	Kendall's tau-b ( $\tau_b$ )	0.207	0.121
	Gamma ( $\Gamma$ )	0.283	0.121

It is evident from the above tables that there is no statistically significant association between EL and PBB as the approx. sig. (p-value) for male is  $0.121 \gg 0.05$ . The p-value for female is  $0.004 < 0.01$ , which suggests that

there is a statistically significant association. However, the degree of association between EL and PBB for female is moderate. Further, with PBB as the dependent, the value of Somers' d indicates that there is no statistical dependency of PBB on EL for male. For female, the dependency of PBB on EL is moderate for female (32.7 percentage).

Therefore, we conclude that  $H_5$  is supported.

#### 4.4. Hypothesis Testing: Influence of gender on the interrelationship between PBB and PPS ( $PBB \rightarrow PPS$ )

Table 10 and Table 11 put on the influence of gender on the association between PBB and PPS.

Table 10. Influence of Gender on the Directional Measure ( $PBB \rightarrow PPS$ )

Gender	Statistic	Direction	Value	Approximate Significance
Female	Somers' d	Symmetric	0.384	0.000
		Satisfaction Dependent	0.365	0.000
Male	Somers' d	Symmetric	0.245	0.099
		Satisfaction Dependent	0.241	0.099

Table 11. Influence of Gender on the Association between PBB and PPS

Gender	Statistic	Value	Approximate Significance
Female	Kendall's tau-b ( $\tau_b$ )	0.385	0.000
	Gamma ( $\Gamma$ )	0.503	0.000
Male	Kendall's tau-b ( $\tau_b$ )	0.245	0.099
	Gamma ( $\Gamma$ )	0.327	0.099

It is evident from the above tables that there is no statistically significant association between PBB and PPS as the approx. sig. (p-value) for male is  $0.099 \gg 0.05$ . The p-value for female is  $0.000 < 0.01$ , which suggests that there is a statistically significant association. However, the degree of association between PBB and PPS for female is considerably high (50.3 percentage). Further, with PPS as the dependent, the value of Somers' d indicates that there is no statistical dependency of PPS on PBB for male. For female, the dependency of PBB on EL is moderate for female (36.5 percentage)

Therefore, we conclude that  $H_6$  is supported.

The table (Table 12) given below shows the summary of the testing of hypotheses.

Table 12. Summary of Hypothesis testing

Hypothesis Test	Result	Remarks
$H_1$ : There is a significant association between EL and PBB	Supported	The association is moderate
$H_2$ : EL leads to PBB	Supported	The dependency is moderate
$H_3$ : PBB is significantly associated with PPS	Supported	The association is moderate
$H_4$ : PBB leads to PPS	Supported	The dependency is moderate
$H_5$ : Gender has a significant influence on the association between EL and PBB	Supported	There is no association for male and for female, moderate association is observed.
$H_6$ : Gender has a significant influence on the association between PBB and PPS	Supported	There is no association for male and for female, considerably high association is observed.

## 5. Discussions

The main purpose of this present research is to understand the relationship between preference buying behaviour (PBB) with expertise level (EL) and post-purchase satisfaction (PPS). This study also aims to investigate whether gender is acting as an influencer in the relationship of EL, PBB, and PPS. We tested six hypothesis that are related to these variables.

The finding of this paper indicates that the association between expertise levels of organic product purchase with preference buying is moderate. So Indian consumers who are having high expertise in buying organic product should be targeted first to create the green awareness or green buying. When the consumers' expertise level is positive, they will display more preference buying behaviour. This moderate relationship between the expertise level and preference buying may be also because of the unorganized Indian retail market with an extensive variety of non-deceptive and fake organic products (Samaddar and Menon, 2020), which lowers the perceived value of such products. Thus, the experience of having counterfeit products outcomes moderate or no adoption of organic products, despite consumers' expertise level of utilising it.

Another significance area that emerges from this paper is that preference buying behaviour leads to post-purchase satisfaction. So possessing higher preference buying leads to post purchase satisfaction. An explanation for such outcomes could be that preference buying is mostly connected to products' performance characteristics and risks associated to it which can impact the consumers' satisfaction. Consumers with a high preference for organic products do not have the perception of product failure. Further consumers consider organic products less risky than conventional ones. Thus the consumers do not go for any significant change in their lifestyle once they get satisfaction with their purchase choice.

Also, this study shows that Gender has a significant influence on the association between EL and PBB. However the degree of association between EL and PBB for female is moderate, which is nil for male. This interprets that that females' expertise levels of purchasing organic food leads them towards preference buying. The analysis shows the similar result for association between PBB & PPS in terms of gender. This signifies that females' preference buying behaviour leads to post-purchase satisfaction, which is nil for male. So understanding the fifth goal of the United Nations' Sustainable Development Goals (SDGs) which is Gender Equality, this paper also considers gender perspective as an essential parameter.

## 6. Conclusion and Future Scope

This research is one of the first studies to inspect the tool and situation of how consumers' expertise level and preference buying behaviour influence post-purchase satisfaction towards green product. The research conclusions can assist the marketers to improve an additional real-world situation of utilising green marketing information to entice and convince customers and consequently to strengthen their experience level and preference buying behaviour towards green products while bridging the academic research gap between preference buying behaviour with post-purchase satisfaction. The experience level may create conscious preference buying and exert a positive impact on post-purchase satisfaction. A satisfied customers are much probable to extend positive WOM (word of mouth) and repurchase. The marketers should emphasis on the customers having expertise in buying green products and thus communicate green marketing approaches.

With respect the gender, this paper has evidenced a moderate connotation of female community in terms of association between EL and PBB and also between PBB and PPS. So future green marketing communications lead to take female community more individual responsibility towards environmental protection. This paper also recommends that green marketers need to showcase their goods through gender centric market segmentation. It is recommended for green marketers not to presume that what exerts best for the female segment also applies best for the male one.

This paper can be further extended with more attributes. This study mainly emphasises on buying patterns of the urban consumers of Asian countries like India. In contrast, further research can be done in other developed and developing nations, with an emphasis on rural areas, which make up a sizeable portion of the worldwide population. Moreover, the sample in this research is based upon the customers, who are mostly aware of the detrimental effect of environmental concerns. To widen the opportunity further cross-comparative studies can be done among eco-friendly and non-eco-friendly customers to support more diversified segmentation. On the other hand, this study considers organic products as a whole. So the future scope can be further extended on some specific organic products like- recyclable products, food items, skincare, clothes, etc., and other products as well. The study can be conducted by importing some of the negative variables like-green wash, green skepticism, etc. to understand the customers' actual inclination towards the environment. Finally it can be further delved into various dimension of preference buying and examine the impact on the satisfaction level. Further introduction can be possible like utility value measure, consumer experience, and brand experience in addition to satisfaction. The testing of hypothesis can be further done with the use of fuzzy modelling based approach.

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