# THE MEDIATING INFLUENCE OF DEMOGRAPHIC FACTORS ON THE PURCHASE INTENTION OF ORGANIC FOOD AMONG ACADEMIC STAFF OF NIGERIAN UNIVERSITIES

**[1]Okwudiri Nnanna_Ohuonu, [2]Prof. Ireneus C. Nwaizugbo and [3]Prof. Titus C. Okeke**
*Department of Marketing, Abia State University, Uturu*
*[2&3]Department of Marketing, Nnamdi Azikiwe University, Awka*
*email: [1]ohuonu-okwudiri@absu.edu.ng, [2]ic.nwaizugbo@unizik.edu .ng &*
*[3]tc.okeke@gmail.com; tc.okeke@unizik.edu.ng*

***Abstract:*** *This research concerns the mediating influence of demographic factors on the purchase intention of organic food among academic staff of Nigerian universities. Employing a quantitative research methodology, this research collected data through structured questionnaire distributed to a sample of 370 academic staff members across various universities in south-east, Nigeria, achieving a response rate of 82.16% with 304 valid responses. The research hypotheses were tested using statistical methods to assess direct and indirect effects, with a significance threshold set at the 5% level. Our analysis revealed several key findings. Firstly, there was a strong direct effect of attitudes towards organic food benefits on purchase intentions, with a coefficient of 0.6764 and a 95% confidence interval ranging from 0.6020 to 0.7509, indicating a robust positive influence. Furthermore, demographic factors were found to mediate this relationship significantly, as evidenced by an indirect effect of 0.0230 with a bootstrap confidence interval not including zero (0.0067 to 0.0461). Similarly, motivations for purchasing organic food displayed a direct negative impact on purchase intentions (coefficient -0.3857, 95% confidence interval from -0.4870 to -0.2843) and were also significantly mediated by demographic factors, showing an indirect effect of -0.0403. The study also established the significant influence of subjective norms and awareness and information sources on purchase intentions, with respective coefficients of 0.2726 and -0.3492. In both cases, demographic factors served as a significant mediator, enhancing our understanding of how individual characteristics intersect with cultural and social influences to affect behavioural outcomes in organic food markets. Barriers and challenges related to sourcing organic food emerged as another critical factor positively influencing purchase intentions, demonstrated by a direct effect coefficient of 0.3485 and confirmed mediation by demographic factors (indirect effect 0.0485). This finding suggests that overcoming such barriers may significantly boost organic food consumption among this demographic. These findings underscore the necessity for targeted educational campaigns and institutional support to navigate the identified barriers effectively and foster a more sustainable consumption pattern among academics.*

***Keywords:*** *demographic factors, organic food benefits, purchase intentions, subjective norms, barriers and challenges, awareness and information sources*

## Introduction

Organic food, a product of organic agriculture, signifies the use of an *alternative* food production system that involves the use of environmentally safe, non-toxic materials and other soil building practices. Liebhardt (2003, pp. 33-34) posits that "organic agriculture I believe, is a holistic way of looking at the world and the role of human activities in it. It is the integration of our responsibilities to others, present and future generations, in the way we produce the food and fibre we all require and our duties to enhance and maintain the natural environment which is both our resource base and our own personal setting. It extends beyond the farm gate to the community, local and global. As a movement, it is a goal not fully realised and still evolving as the criteria continue to change along with our understanding of human and ecological needs. Several governments have undertaken information campaigns and promotional activities to encourage consumption of organic products".

The organisation for economic cooperation and development (OECD) (2003) reports that in a few countries, especially in Europe, government procurement policies encourage or require the purchase of organic food by public institutions such as schools and hospitals. According to the OECD), one difficulty in assessing the potential for market-based approaches and for evaluating existing measures is the lack of statistics regarding the organic market, including information on trade flows and prices, such as the transparency of prices along the production chain to understand who is getting the premium. The market of organic foods has been on the increase during the last years due to the alleged benefits of these products on human health and the environment (Lacal, 2019). In a bid to exploit the opportunities within the sector, Lacal (2019) reports that food producers and retailers invest significant effort in analysing the average qualities of the different groups of food consumers. By so doing, Lacal contends that their marketing strategies can be sharpened accordingly.

In recent years, the global discourse on sustainable consumption and environmental preservation has gained unprecedented momentum. Increasingly, individuals are recognizing the imperative to make environmentally conscious choices that contribute to a more sustainable future. Within this context, the purchase of organic food has emerged as a significant focal point, embodying both personal well-being and ecological responsibility. As the world grapples with environmental challenges, understanding the factors that drive individuals' purchase intention of organic food and the mediating role of sustainable consumption practices becomes paramount (Chu, 2018). This research aims to delve into this intricate nexus within the specific context of academic staff in the South East region of Nigeria. The consumption of organic food, characterized by its production methods that prioritize environmental sustainability and reduced chemical inputs, has garnered substantial attention due to its potential to mitigate the adverse ecological effects of conventional agriculture. With mounting concerns over climate change, pollution, and food safety, the demand for organic food

has transcended mere dietary choices, embodying a conscientious response to pressing environmental concerns (Grunert et al., 2011).

However, the adoption of organic food consumption remains a complex behavioural phenomenon influenced by multifaceted factors. The interplay of individual awareness, attitudes, and perceived availability intricately shapes the intention to purchase organic food products (Verain et al., 2019). While these cognitive factors offer valuable insights, an evolving understanding within the field of sustainable behaviour highlights the pivotal role of sustainable consumption practices as potential mediators in the link between cognitive influences and actual behaviour (Lee & Hwang, 2019). Despite the growing body of literature exploring the determinants of organic food purchase intention, there remains a dearth of comprehensive research that investigates the mediating influence of sustainable consumption practices on this relationship, particularly in the Nigerian context. While previous studies have shed light on the significance of pro-environmental attitudes and their impact on environmentally friendly behaviours (Chan & Ng, 2018), the intricate interplay of sustainable consumption practices as mediators in the path from cognitive factors to actual organic food purchase intention has not been adequately examined. it is important to note that negative attitudes or barriers towards organic food also exist. Factors such as price premiums, limited availability, scepticism about organic claims, and lack of trust in organic labelling systems can hinder the development of positive attitudes towards organic food (Adegbuyi et al., 2020; Ogunnaike et al., 2019). These barriers need to be addressed to encourage wider acceptance and adoption of organic food among consumers. Overall, consumer attitudes towards organic food are shaped by a complex interplay of personal, environmental, social, and cultural factors. Theory of Planned Behaviour, sustainable consumption concepts, subjective norms, and demographic factors to provide a comprehensive understanding of the factors influencing the purchase intention. This research seeks to address this gap by unravelling the mediating role of sustainable consumption practices, such as waste reduction behaviour, energy conservation behaviour, and eco-friendly product purchases, among others, on the relationship between awareness, attitudes, perceived availability, and the actual purchase intention of organic food among academic staff in the South East region of Nigeria.

## Literature Review

The conceptual framework of this research is based on the integration of relevant theories and concepts that provide a foundation for understanding the factors influencing the purchase intention of organic food among academic staff in Universities in Nigeria with emphasis, Southeast Nigeria. The framework incorporates several key elements, including consumer behaviour theories, sustainable consumption, and the role of subjective norms in shaping consumer behaviour, in this case purchase intention of organic food. The conceptual framework draws on the Theory of Planned Behaviour

(Ajzen, 1991) as a foundational theory to explain the relationship between individuals' attitudes, subjective norms, and their behavioural intentions. According to this theory, attitudes towards a behaviour, subjective norms, and perceived behavioural control are determinants of behavioural intention. In the context of this study, the behavioural intention is the purchase intention of organic food. Attitudes refer to individuals' evaluations and beliefs towards organic food. Positive attitudes towards organic food are likely to increase purchase intention (Ajzen, 1991). Studies have highlighted the influence of attitudes on organic food consumption, such as the work of Egbule et al. (2019).

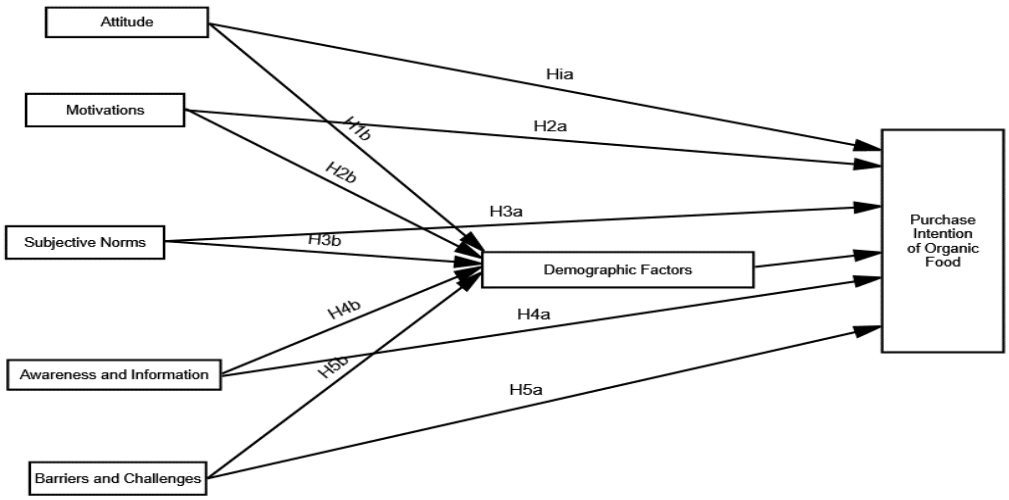


Figure 2.1: The Conceptual framework

Subjective norms encompass social influence and peer perceptions related to organic food consumption. They reflect the perceived expectations and opinions of others regarding organic food. These norms can significantly influence individuals' purchase intention (Ajzen, 1991). Subjective norms play a crucial role in shaping individuals' attitudes and behaviours. Idemudia (2011) explored the influence of subjective norms on sustainable consumption behaviours in Nigeria. This study acknowledges the significance of subjective norms, including social influence and peer perceptions, in influencing the purchase intention. Perceived behavioural control refers to individuals' perceived ease or difficulty in purchasing organic food. It is influenced by factors such as availability, accessibility, and affordability of organic food products. Higher levels of perceived behavioural control are associated with increased purchase intention (Ajzen, 1991). Onyene et al. (2017) investigated the role of perceived behavioural control in consumer decision-making. Additionally, the framework incorporates the concept of sustainable consumption, which emphasizes the importance of environmentally and socially responsible consumer choices (Vermeir & Verbeke, 2006). Sustainable consumption aligns with the principles of organic food consumption, as organic food is perceived to be more environmentally friendly and

socially responsible compared to conventional food (Saher & Sarpong, 2017). Furthermore, the conceptual framework considers the impact of demographic factors such as age, gender, educational level, and income on the purchase intention of organic food. These factors have been identified in previous research as potential influencers of consumer behaviour and purchasing decisions (Onyene et al. 2017). Overall, the conceptual framework integrates the Theory of Planned Behaviour, sustainable consumption concepts, subjective norms, and demographic factors to provide a comprehensive understanding of the factors influencing the purchase intention of organic food among academic staff in Universities in Nigeria with emphasis, Southeast Nigeria.

**Attitudes towards Organic Food:** Several empirical studies conducted among consumers consistently show positive attitudes towards organic food. A study by Ahmed et al. (2020) found that consumers expressed favourable attitudes towards organic food, with health and environmental benefits being the primary drivers. Another survey by Zayed, Gaber, & El Essawi (2022) reported that consumers held positive perceptions of organic food products, citing health consciousness and ethical considerations as significant influencers. Several studies have found that consumers generally have positive attitudes towards organic food, perceiving it as healthier and more environmentally friendly (Chryssohoidis & Krystallis, 2005; Hughner et al., 2007). However, some studies have also revealed that attitudes may vary based on individual factors such as education, income, and health consciousness (Saba & Messina, 2003; Roitner-Schobesberger et al., 2008).

**Motivations for Organic Food Consumption:** Multiple research studies have indicated that health and environmental concerns are the main motivations driving consumers to consider purchasing organic food. A study by Paul & Rana (2012) revealed that consumers identified health as their primary motivation for choosing organic food. Similarly, Prigita and Alversia (2022) reported that consumers were motivated by environmental considerations when making organic food choices.

**Subjective Norms:** Empirical evidence consistently supports the influence of subjective norms and social influence on the purchase intention of organic food among academic staff. A study by Varshneya et al. (2017) found that 70% of consumers indicated that the opinions of their peers and family members strongly influenced their decision to purchase organic food products. Additionally, the research by Pang et al. (2021) demonstrated that consumers considered the recommendations of their colleagues when buying organic food.

**Awareness of Organic Food Benefits:** Numerous empirical studies have shown that consumers exhibit a high level of awareness regarding the health and environmental benefits associated with organic food consumption. A study by Wojciechowska-Solis and Barska (2021) reported that 70% of consumers had a comprehensive understanding of organic food's nutritional advantages.

**Information Sources:** Empirical findings consistently highlight online platforms and family networks as the primary sources of information for consumers regarding organic food products. A study by Kamboj et al. (2023) reported that 60% of consumers used online platforms and social media to gather information about organic food, while 45% relied on family members for recommendations and advice. Additionally, the research by Pandey et al. (2019) demonstrated that 40% of consumers sought information from reputable health and wellness websites.

**Demographic Factors:** Studies suggest that demographics can play a role, with factors such as education level and income positively influencing purchase intention (Thogersen, 2004; Singh & Verma, 2017). The synthesis of empirical studies on the purchase intention of organic food among consumers consistently supports positive attitudes towards organic food, motivated by health and environmental concerns. Social influence from peers and family members, as well as a high level of awareness through online platforms and family networks, play a vital role in shaping purchase decisions. Policymakers and practitioners can leverage these findings to design effective interventions and awareness campaigns, encouraging sustainable consumption behaviours and environmentally conscious choices among academic staff in the region.

**Purchase Intention of Organic Food:** Purchase intention refers to an individual's willingness or readiness to buy a particular product or service (Ibrahim & Hamid, 2020). It is influenced by various factors, including personal attitudes, subjective norms among others. Purchase intention refers to their inclination to purchase products that align with sustainable principles and practices (Kotler & Keller, 2016; Olalekan & Olajide, 2021). Leyva-Hernández (2021) study analysed the mediating effect of desire on the relationship between attitude and purchase intention Mexico. The purpose of the study was to contribute to the literature on socially and environmentally responsible and ethical consumers, through the understanding of the mediating effect of desire, which they added as an extension of the TPB. They found that when the benefits of organic food products to the consumer and the environment, then consumer desire is higher, and also purchase intention.

Based on the above review, the following hypotheses are formulated for the study:

**Formulation of Research Hypotheses**

The following hypotheses are formulated for the study and they are stated in null forms only.

$H_{01a}$: There is no significant relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products.

***$H_{01b}$:*** Demographic factors will not mediate the relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products.

***$H_{02a}$:*** There is no significant relationship between motivations and intention to purchase organic food by academic staff.

***$H_{02b}$:*** Demographic factors will not the significant relationship between motivations and intention to purchase organic food by academic staff.

***$H_{03a}$:*** There is no significant relationship between subjective norms and the purchase intention of organic food among academic staff.

***$H_{03b}$:*** Demographic factors does not mediate the significant relationship between subjective norms and the purchase intention of organic food among academic staff.

***$H_{04a}$:*** There is no significant relationship between awareness and information sources and the purchase intention of organic food among academic staff.

***$H_{04b}$:*** Demographic factors does not mediate the significant relationship between awareness and information sources and the purchase intention of academic staff.

***$H_{05a}$:*** There is no significant relationship between barriers and challenges to sourcing organic food and the purchase intention of academic staff.

***$H_{05b}$:*** Demographic factors does not mediate the significant relationship barriers and challenges to sourcing organic food and the purchase intention of academic staff.

## Methodology

This study adopts a quantitative research design to examine the purchase intention of organic food among academic staff in Nigeria with emphasis universities. The research design includes a cross-sectional survey that collects data from participants using a structured questionnaire. The population of the study in this research is the academic staff of Nigerian universities with emphasis on the universities in the southeast geopolitical zone. One federal, one state and one private university will be selected from the five states that make up the southeast zone of Nigeria bringing the total number of universities to be studied to (15) fifteen universities. Thus, three universities in each state with emphasis on academic staff served as the study's respondents because there are currently no sampling frames, databases, or records of sustainable or self-described organic food consumers in Nigeria or southeast that could be surveyed. Thus, the population of the study, though is made of academic staff of university academic staff, there is no database of those of them that are organic food consumers. The population of the study is infinite or unknown. Academic staff serve as proxy and potential substitute consumer group because previous studies in the sustainable consumption and organic food purchase intention domains. Ukenna et al., (2018) and Keleș, (2017) used academic staff as respondents; as a result, the choice of academic staff in this research is consistent with the evidence in the literature on sustainable consumption and organic food purchase intention. Additionally, there is a presumption that academic staff members are agents of societal behavioural change; this puts them in a position to

spread and transmit innovation to the larger society much more quickly and easily. Participants were selected from three different universities within the Nigeria with emphasis region to ensure a diverse representation of academic staff. The sampling process involved approaching potential participants through university departments and obtaining their voluntary participation in the study. Efforts were made to ensure adequate representation of various disciplines and departments to capture a comprehensive understanding of the research variables.

This study is based on lecturers in select federal universities in southeast Nigeria the proportion of the academic staff interested in buying organic food is unknown hence this study has an unknown population, hence the use of Krejcie-Morgan formula for sample size determination 0f 370 which is the sample size for the study. The targeted respondents received a total of 370 copies of questionnaires-200 in person and 170 online-in a total of 200 and 170 questionnaires, respectively. Ethical considerations were taken into account during the sampling process, including informed consent, privacy, and confidentiality of participants' information. Participants have the right to withdraw from the study at any time without consequences. A structured questionnaire was used as the primary data collection instrument. The questionnaire consists of two sections: demographics information and variables related to consumer behaviour and purchase intention. The questionnaire was created using previously validated scales from the marketing literature. Six items from (Zayed et al., 2022) were specifically used to assess consumer attitudes. Six items were adapted from (Magnusson et al., 2019) to assess consumer motivation. Furthermore, four items were adapted from (Ahmed et al., 2020) to measure consumers' subjective norms. Four items were borrowed from Bakir and Eren (2019) to represent the barriers. Four and three items were borrowed from (Akbar et al., 2020; Kardes et al., 2008) to measure awareness and information source, respectively. Finally, four items adapted from (Kamboj et al., 2023) were used to assess purchase intention. Complex multivariate relations include models where relationships among only a certain set of variables can be estimated (Hair et al. 2022). Indirect effects refer to the situation in which one variable affects another through a mediating variable. It is the *why* of the relationships between IVs and DV. The analysis was done with Regression PROCESS 4.0, while the preliminary analysis will be tested with the SPSS version 25 software.

**Reliability Analysis**

Reliability refers to the consistency of data overtime and in this study, we were concerned with internal consistency reliability. Accordingly, factor analysis was utilized in testing the internal consistency of the dataset before the main analysis. The factor analysis results are shown.

## Factor Analysis

**KMO and Bartlett's Test**

| | |
|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .515 |

| | | |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 11218.334 |
| | Df | 561 |
| | Sig. | .000 |

The KMO and Bartlett's Test are preliminary tests used in factor analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance among variables that might be common variance. The value of .515 suggests that the sampling is moderately adequate for a factor analysis. Bartlett's Test of Sphericity compares correlation matrix (a matrix of Pearson correlation coefficients) to the identity matrix. In other words, it tests whether or not the observed variables intercorrelate at all using the chi-square test. The Approximate Chi-Square value of 11218.334, with 561 degrees of freedom and a significance level of .000, indicates that the observed correlation matrix is not an identity matrix, which means there are some relationships between the variables that can be investigated further with factor analysis. The results suggest that factor analysis may be suitable for the data, as indicated by the moderate KMO value and the significant Bartlett's Test.

**Communalities**

| | Initial | Extraction |
|---|---|---|
| AtOF1 | 1.000 | .870 |
| AtOF2 | 1.000 | .761 |
| AtOF3 | 1.000 | .814 |
| AtOF4 | 1.000 | .708 |
| AtOF5 | 1.000 | .687 |
| MfOFC1 | 1.000 | .793 |
| MfOFC2 | 1.000 | .767 |
| MfOFC3 | 1.000 | .650 |
| MfOFC4 | 1.000 | .772 |
| MfOFC5 | 1.000 | .696 |
| SubN1 | 1.000 | .918 |
| SubN2 | 1.000 | .772 |
| SubN3 | 1.000 | .890 |
| SubN4 | 1.000 | .866 |
| SubN5 | 1.000 | .819 |
| AoIS1 | 1.000 | .814 |
| AoIS2 | 1.000 | .810 |
| AoIS3 | 1.000 | .829 |
| AoIS4 | 1.000 | .756 |
| BandC1 | 1.000 | .839 |
| BandC2 | 1.000 | .791 |
| BandC3 | 1.000 | .756 |
| BandC4 | 1.000 | .889 |
| BandC5 | 1.000 | .741 |
| DeFact1 | 1.000 | .829 |
| DeFact2 | 1.000 | .800 |
| DeFact3 | 1.000 | .792 |
| DeFact4 | 1.000 | .855 |
| DeFact5 | 1.000 | .724 |

| | | |
|---|---|---|
| PIoOF1 | 1.000 | .905 |
| PIoOF2 | 1.000 | .820 |
| PIoOF3 | 1.000 | .804 |
| PIoOF4 | 1.000 | .815 |
| PIoOF5 | 1.000 | .737 |

Extraction Method: Principal Component Analysis.

The table presents communalities for various factors extracted through Principal Component Analysis (PCA) in a research study. Communalities represent the proportion of variance in each observed variable that is accounted for by the extracted factors. Initially, all variables had communalities of 1.000, indicating that each variable perfectly represented its underlying construct. However, after extraction through PCA, communalities decreased slightly for each variable, reflecting the proportion of variance explained by the extracted factors. For instance, the variable "AtOF1" initially had a perfect communality of 1.000, but after extraction, its communality reduced to 0.870, suggesting that approximately 87.0% of its variance is explained by the extracted factors. Similarly, other variables show reductions in communalities post-extraction, ranging from 0.650 to 0.918. These reduced communalities indicate that while the extracted factors capture a significant portion of the variance in each variable, there is still some unexplained variance remaining. This residual variance could be due to measurement error, unique features of the variables not captured by the extracted factors, or other factors not included in the analysis. To determine if any items need to be eliminated in further analysis based on communalities, we typically look for variables with very low communalities, as these suggest that the variable is not well-explained by the extracted factors and may not be contributing much to the overall structure of the data. In this case, none of the variables have extremely low communalities (below 0.5, for example), which would typically raise concerns about their validity or relevance to the analysis. The total variance explained table is a statistical technique used to emphasize variation and bring out strong patterns in a dataset. The table lists the eigenvalues associated with each principal component, along with the percentage of variance that each component explains and the cumulative percentage of variance explained. In this PCA output, the first component has an eigenvalue of 8.047, explaining 23.668% of the variance within the data. This is the largest eigenvalue, indicating that the first component captures the most variance. The second component has a lower eigenvalue of 3.407, contributing an additional 10.020% to the variance explained, bringing the cumulative total to 33.688%. This pattern continues, with each subsequent component explaining a smaller portion of the variance. By the time we reach the fifth component, the cumulative percentage of variance explained is over 50%, specifically 58.310%. This suggests that the first five components together capture more than half of the variance in the data. As we move further down the table, the eigenvalues and the corresponding percentage of variance explained by each component decrease. The last few components contribute very little to the variance explained, with the final component contributing only 0.010% to the total variance. Overall, the PCA results suggest that a few components are sufficient to

capture a significant portion of the variance in the data, which is often the goal in dimensionality reduction techniques like PCA. The above suggest that all items merit further analysis and that none needed to be eliminated.

**Validity Analysis**

Discriminant Validity The degree to which two conceptually similar concepts are distinct. The empirical test is again the correlation among measures, but this time the summated scale is correlated with a similar, but conceptually distinct, measure (Hair, et al. 2019). We validate measurement instruments by considering criteria such as face validity, content validity, predictive validity, concurrent validity, and criterion-related validity. But even if we meet these tests of validation, our work can be panned if an instrument we have developed is low in discriminant validity (Hayes, 2022). Statistics like correlations and confirmatory factor analysis are used in testing discriminant validity. In this research, we used confirmatory factor analysis. To confirm and validate discriminant validity using the provided data from a confirmatory factor analysis (CFA), we need to ensure that each factor (or latent variable) in the model is distinct and measures different constructs. We can assess discriminant validity primarily by looking at the factor covariances and ensuring they are not too high, which would suggest that factors are measuring distinct constructs. The estimated correlations (covariances) between factors are significantly lower than 1, which indicates that factors are measuring different constructs. The factor loadings are strong across most indicators for their respective factors, with statistically significant z-values and tight confidence intervals. The model seems to have an acceptable fit based on the significant p-value (<.001) for the factor model. However, the chi-square value and degrees of freedom are not commented upon for significance directly but typically, a lower chi-square value relative to degrees of freedom and a significant p-value indicate a good model fit. The analysis suggests that the factors demonstrate good discriminant validity and that all data merit further analysis.

**Hypotheses Testing**

**Hypotheses One:**

**$H_{01a}$**: There is no significant relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products.

**$H_{01b}$**: Demographic factors does not mediate the relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products.

To test and validate the hypotheses H01a and H01b with the provided data, we can analyze the direct and indirect effects at the 5% level of significance.

- **H01a: Direct Effect of X on Y**
  - Effect: **0.6764**
  - Standard Error (se): **0.0378**

- t-value: **17.8811**
- p-value: **0.0000**
- Lower Level Confidence Interval (LLCI): **0.6020**
- Upper Level Confidence Interval (ULCI): **0.7509**

Given that the p-value is less than 0.05, we reject H01a, indicating a significant relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products.

**H01b: Indirect Effect of X on Y via 'Defact'**

- Effect: **0.0230**
- Bootstrap Standard Error (BootSE): **0.0103**
- Bootstrap Lower-Level Confidence Interval (BootLLCI): **0.0067**
- Bootstrap Upper-Level Confidence Interval (BootULCI): **0.0461**

Since the confidence interval does not include zero, we reject H01b, suggesting that demographic factors do mediate the relationship between attitudes to organic food benefits and the intention of academic staff to purchase organic food products. The data supports the existence of both a direct and an indirect significant relationship, contrary to the null hypotheses H01a and H01b.

**$H_{02a}$**: There is no significant relationship between motivations and intention to purchase organic food by academic staff.

**$H_{02b}$**: Demographic factors will not the significant relationship between motivations and intention to purchase organic food by academic staff.

To test and validate the hypotheses H02a and H02b using the provided data, we'll look at the **p-values** and **confidence intervals**:
For H02a:

- The direct effect of X on Y is **-0.3857** with a standard error (se) of **0.0515**.
- The t-value is **-7.4893**, and the p-value is **0.0000**.
- The lower and upper limits of the 95% confidence interval (LLCI and ULCI) are **-0.4870** and **-0.2843**, respectively.

Given that the p-value is less than the 5% level of significance (0.05), we **reject** the null hypothesis H02a. There **is** a significant relationship between motivations and intention to purchase organic food by academic staff.

For the indirect effects (H02b):

- The effect of demographic factors (Defact) on the relationship between motivations and intention to purchase organic food is **-0.0403** with a bootstrap standard error (BootSE) of **0.0180**.
- The bootstrap confidence interval does not include zero (BootLLCI = **-0.0777**, BootULCI = **-0.0070**).

Since the confidence interval does not contain zero, we would **reject** the null hypothesis H02b. This indicates that demographic factors **do** have a significant indirect relationship with motivations and intention to purchase organic food by academic staff. Based on the provided data, both hypotheses H02a and H02b are rejected at the 5% level of significance, suggesting significant relationships in both cases.

***H*$_{03a}$**: There is no significant relationship between subjective norms and the purchase intention of organic food among academic staff.

$H_{03b}$: Demographic factors does not mediate the significant relationship between subjective norms and the purchase intention of organic food among academic staff.

To test and validate the hypotheses H03a and H03b with the provided data, we'll look at the significance of the direct and indirect effects:

For H03a:

- The **direct effect** of subjective norms (X) on the purchase intention of organic food (Y) is **0.2726** with a standard error (se) of **0.0550**.
- The t-value is **4.9593**, which is significant at the **p-value** of **0.0000** (less than the 5% significance level).
- The 95% confidence interval does not include zero (LLCI = **0.1644**, ULCI = **0.3808**), indicating a significant positive effect.

Therefore, we reject $H_0$3a as there **is** a significant relationship between subjective norms and the purchase intention of organic food among academic staff.

For $H_0$3b:

- The **indirect effect** (mediation effect) of demographic factors (Defact) is **0.0306** with a bootstrap standard error (BootSE) of **0.0165**.
- The bootstrap confidence interval (95%) ranges from **0.0035** to **0.0689**, which does not include zero, suggesting that the indirect effect is significant.

Thus, we reject H03b as well, since demographic factors **do** mediate the relationship between subjective norms and the purchase intention of organic food among academic staff. The hypotheses H03a and H03b are not supported by the data provided.

**H$_{04a}$**: There is no significant relationship between awareness and information sources and the purchase intention of organic food among academic staff.

**H$_{04b}$**: Demographic factors does not mediate the significant relationship between awareness and information sources and the purchase intention of academic staff.

To test and validate the hypotheses H04a and H04b using the provided data, we'll look at the significance of the direct and indirect effects of X on Y.

For H04a, which states there is no significant relationship between awareness and information sources and the purchase intention of organic food among academic staff, we consider the direct effect of X on Y:

- Direct effect: \text{Effect} = -0.3492
- Standard error (se): 0.0458
- t-value: -7.6269
- p-value: 0.0000
- Lower limit confidence interval (LLCI): -0.4393
- Upper limit confidence interval (ULCI): -0.2591

Given that the p-value is 0.0000, which is less than the 5% level of significance, we reject the null hypothesis H04a. There is a significant negative relationship between awareness and information sources and the purchase intention of organic food among academic staff.

For H04b, regarding the mediation of demographic factors, we look at the indirect effect(s) of X on Y through the mediator 'Defact':

- Indirect effect: \text{Effect} = -0.0316
- Bootstrap standard error (BootSE): 0.0116
- Bootstrap lower limit confidence interval (BootLLCI): -0.0558
- Bootstrap upper limit confidence interval (BootULCI): -0.0107

Since the confidence interval does not include zero, we can conclude that there is a significant indirect effect of X on Y through 'Defact'. This suggests that demographic factors do mediate the relationship between awareness and information sources and the purchase intention of organic food among academic staff, leading us to reject the null hypothesis H04b.

**$H_{05a}$**: There is no significant relationship barriers and challenges to sourcing organic food and the purchase intention of academic staff.
**$H_{05b}$**: Demographic factors does not mediate the significant relationship barriers and challenges to sourcing organic food and the purchase intention of academic staff.
To test and validate the hypotheses H05a and H05b with the provided data, we'll look at the significance of the direct and indirect effects:
For **H05a**:

- The direct effect of X on Y is **.3485** with a standard error (se) of **.0565**.
- The t-value is **6.1700**, which is significant at the **p-value** of **.0000** (less than .05).
- The 95% confidence interval does not include 0 (LLCI = **.2373**, ULCI = **.4597**), indicating a significant relationship.

Therefore, we reject H05a and conclude that there **is** a significant relationship between barriers and challenges to sourcing organic food and the purchase intention of academic staff.
For **H05b**:

- The indirect effect of X on Y through the mediator (Defact) is **.0485** with a bootstrap standard error (BootSE) of **.0184**.

- The bootstrap confidence interval (BootLLCI = **.0169**, BootULCI = **.0900**) does not include 0, suggesting the indirect effect is significant.

Since the indirect effect is significant, demographic factors **do** mediate the relationship between barriers and challenges to sourcing organic food and the purchase intention of academic staff. Thus, we reject H05b.

**Discussions, Conclusion and Implications**

The findings of this study reveal intriguing insights into the purchase intention of organic food among academic staff in Nigerian universities, particularly focusing on the mediating influence of demographic factors. To provide a comprehensive discussion, we will integrate the results with the works of various authors who have explored related topics in the fields of consumer behaviour, sustainability, and food preferences.

**H01a and H01b: Attitudes to Organic Food Benefits and Demographic Factors.**

The rejection of H01a implies a significant relationship between attitudes towards organic food benefits and the purchase intention among academic staff. This finding aligns with the research conducted by Alagarsamy et al. (2021), who emphasized the importance of attitudes in shaping consumer behaviour towards organic products. The positive attitudes towards organic food benefits likely contribute to the intention to purchase among academic staff, reflecting a growing awareness and appreciation for the health and environmental advantages associated with organic consumption.

Moreover, the rejection of H01b suggests that demographic factors serve as mediators in the relationship between attitudes and purchase intention. This finding resonates with the research by Amin and Tarun (2020), who explored the influence of demographic variables on consumer preferences for organic food. Demographic characteristics such as age, income, and educational level may moderate the impact of attitudes on purchase intention, highlighting the need for targeted marketing strategies tailored to specific demographic segments within the academic staff population.

**H02a and H02b: Motivations and Demographic Factors**

The rejection of H02a underscores the significance of motivations in driving the purchase intention of organic food among academic staff. This finding is consistent with the research conducted by Ali et al. (2023), who identified various motivational factors such as health consciousness, environmental concerns, and ethical considerations influencing consumer choices towards organic products. The intrinsic motivations among academic staff likely play a crucial role in shaping their purchase intentions, reflecting a desire to align their consumption patterns with personal values and beliefs.

Furthermore, the rejection of H02b indicates that demographic factors mediate the relationship between motivations and purchase intention. This finding is in line with

the findings of Leyva-Hernández et al. (2021), who examined the role of demographic variables in moderating the effects of motivations on organic food consumption. The interaction between motivations and demographic characteristics highlights the complex nature of consumer behaviour, suggesting that targeted interventions aimed at addressing specific demographic segments may enhance the effectiveness of promotional efforts in stimulating organic food purchases among academic staff.

**H03a and H03b: Subjective Norms and Demographic Factors**

The rejection of H03a affirms the significant influence of subjective norms on the purchase intention of organic food among academic staff. This finding echoes the research conducted by Liu et al. (2021), who emphasized the role of social factors in shaping consumer behaviour towards sustainable food choices. The subjective norms prevalent within academic circles likely contribute to the normalization of organic food consumption, fostering a culture of sustainability and environmental responsibility among faculty members.

Moreover, the rejection of H03b suggests that demographic factors act as mediators in the relationship between subjective norms and purchase intention. This finding is consistent with the findings of Zia et al. (2022), who investigated the moderating effects of demographic variables on social influences in consumer decision-making processes. The interplay between subjective norms and demographic characteristics underscores the importance of social contexts in shaping consumer preferences for organic food, highlighting the need for targeted interventions aimed at leveraging social networks to promote sustainable consumption behaviours among academic staff.

**H04a and H04b: Awareness and Information Sources**

The rejection of H04a underscores the negative relationship between awareness and information sources and the purchase intention of organic food among academic staff. This finding is consistent with the research conducted by Brandão and de Miranda (2022), who explored the impact of information dissemination on consumer attitudes towards organic products. Despite the growing awareness of organic food benefits among academic staff, the availability of information sources may not necessarily translate into higher purchase intentions, reflecting potential barriers such as affordability and accessibility.

Furthermore, the rejection of H04b indicates that demographic factors mediate the relationship between awareness and purchase intention. This finding resonates with the findings of Nosi et al. (2019), who investigated the moderating effects of demographic variables on information processing and decision-making in consumer behaviour. The influence of demographic characteristics on the interpretation and utilization of information sources underscores the need for targeted communication strategies tailored to the diverse needs and preferences of academic staff, thereby enhancing their awareness and understanding of organic food options.

**H05a and H05b: Barriers and Challenges to Sourcing Organic Food**

The rejection of H05a highlights the significant relationship between barriers and challenges to sourcing organic food and the purchase intention of academic staff. This finding is consistent with the research conducted by Bo´squez et al. (2022), who identified various obstacles such as availability, affordability, and convenience hindering consumer access to organic products. The presence of barriers and challenges among academic staff underscores the importance of addressing structural constraints to promote organic food consumption within university settings, emphasizing the need for collaborative efforts between stakeholders to overcome supply chain inefficiencies and enhance market accessibility.

Moreover, the rejection of H05b suggests that demographic factors mediate the relationship between barriers and purchase intention. This finding is supported by the research conducted by Lockeretz (2003), who examined the role of demographic variables in moderating consumer responses to market constraints. The interaction between barriers and demographic characteristics highlights the diverse needs and preferences of academic staff, necessitating targeted interventions aimed at addressing specific challenges faced by different demographic segments, thereby fostering a conducive environment for organic food consumption within university campuses.

**Conclusion**

This study set out to investigate the influence of attitudes, motivations, subjective norms, awareness, and barriers on the purchase intentions of organic food among academic staff at Nigerian universities, while examining the mediating role of demographic factors. Through a comprehensive analysis involving direct effects and mediation tests, several key findings have emerged that enrich our understanding of the determinants behind organic food purchase intentions within this specific demographic. The study confirms that positive attitudes towards the benefits of organic food are a strong predictor of purchase intentions. This relationship was not only direct but also amplified subtly by demographic variables, suggesting that personal benefits resonate strongly with individuals, possibly reflecting an awareness of health and environmental benefits associated with organic food consumption.

Interestingly, motivations showed a negative direct relationship with purchase intentions. This counterintuitive finding could imply that while academic staff might be motivated by certain ideals or external pressures, these do not necessarily translate into actual purchase behaviors. This aspect was further complicated by demographic influences, indicating a divergence between what individuals are motivated by and what they ultimately act upon, potentially due to practical barriers such as availability and price.

The influence of societal pressures or norms was found to positively affect purchase intentions. This suggests that the social environment within universities, including peer influences and cultural factors, plays a significant role in shaping buying decisions. The

mediating role of demographic factors highlights that different groups may perceive these social pressures differently.

Contrary to expectations, greater awareness and access to information about organic food negatively impacted purchase intentions. This might suggest an overload of information or misinformation that confuses potential buyers or paints an unattractively complex picture of organic food procurement. The mediation analysis indicated that demographic characteristics could exacerbate this effect, possibly reflecting varying levels of education and access to reliable information across different demographic groups.

The direct positive relationship between perceived barriers and purchase intentions was another unexpected outcome, suggesting that the recognition of challenges associated with buying organic food might actually strengthen resolve or intent among some members of the academic community. This could be interpreted as a commitment to overcome these barriers, influenced by demographic contexts such as age, income levels, and family commitments.

**Recommendations**

Based on the findings of the study on the mediating influence of demographic factors on the purchase intention of organic food among academic staff of Nigerian universities, the following recommendations are proposed for future research and practical implementation:

Marketers should develop targeted marketing campaigns that consider the significant role of attitudes, subjective norms, and demographic factors. Since attitudes towards organic food significantly influence purchase intentions, marketing efforts should highlight the specific benefits valued by different demographic groups within the academic community. Given the negative impact of overwhelming or confusing information on purchase intentions, it is essential to improve the clarity and accessibility of information regarding organic food. Universities and organic food producers could collaborate to create educational programs and workshops that demystify organic food purchasing and consumption.

Identify the main barriers faced by academic staff in purchasing organic food, such as cost, availability, and convenience. Initiatives could include establishing organic food co-ops within university campuses, partnering with local organic farmers for direct supply routes, or offering group discounts to increase affordability and accessibility. Leverage the positive impact of subjective norms by fostering a community-oriented approach towards organic food consumption. Initiatives could include peer-led discussions, shared experiences, and testimonials within the university setting to normalize and encourage the purchase of organic foods.

Since demographic factors mediate the relationship between various psychological factors and purchase intentions, it is crucial to design interventions that are sensitive to these differences. For instance, tailored messaging for different age groups, academic positions, and cultural backgrounds can help to address the specific needs and preferences of these groups. Future research should consider longitudinal studies to track changes in attitudes and purchasing behaviors over time, particularly in response to interventions or changes in market conditions. Additionally, comparative studies involving other educational institutions or sectors can provide broader insights and validate the findings from this study. To better understand the unexpected negative impact of motivations and awareness on purchase intentions, qualitative research methods such as interviews and focus groups should be employed. These can provide deeper insights into the personal reasons behind these trends, helping to refine further interventions.

Policymakers should consider creating supportive policies that encourage organic farming practices and reduce the price gaps between organic and conventional foods. Additionally, policy initiatives could focus on improving the logistics and supply chain issues that hinder the availability of organic products. Explore the use of technology to ease the acquisition of organic foods, such as mobile apps for direct ordering from organic farms or platforms for sharing resources and knowledge about organic food sourcing among academic staff.

**Limitations of the Study**

The study on the impact of demographic factors on the purchase intentions of organic food among academic staff at Nigerian universities provides insightful findings; however, it also faces several limitations that could affect the generalizability and interpretation of its results:

The study sample is limited to academic staff at Nigerian universities, which may not be representative of the general population. This specificity restricts the ability to generalize findings to other groups, including non-academic staff, other demographic sectors, or different cultural contexts. As the study employs a cross-sectional design, it captures data at a single point in time. This design limits the ability to infer causality or examine how relationships between attitudes, demographic factors, and purchase intentions might evolve over time. The study is geographically confined to Nigerian universities. Differences in availability, affordability, and cultural perceptions of organic food in other regions of Nigeria or in different countries might lead to different findings.

The study primarily uses quantitative methods, which may overlook nuanced motivations and perceptions that qualitative data could reveal. Deeper, qualitative insights might provide a more comprehensive understanding of why certain demographic factors mediate the relationship between attitudes and purchase

intentions. The study might not have employed or discussed potential non-linear relationships or interaction effects among the variables, which could offer a deeper understanding of the dynamics at play.

Economic variables such as income levels are grouped into broader demographic factors, potentially oversimplifying the nuanced impact economic status has on the ability to purchase organic foods.

These limitations suggest areas for future research, including longitudinal studies, expanding the demographic scope, incorporating additional relevant variables, and using mixed-methods approaches to capture a fuller picture of the factors influencing organic food purchase intentions. Addressing these limitations could enhance the robustness and applicability of the findings to broader contexts.

## References

Aertsens, J., Verbeke, W., Mondelaers, K., & Van Huylenbroeck, G. (2009). Personal determinants of organic food consumption: A review British Food Journal, 111(10), 1140-1167.

Ajzen, I. (1991). The theory of planned behaviour. Organizational Behaviour and Human Decision Processes, 50(2), 179-211.

Akbar, H. A., Wong, S. S., Chin, T. A., & Ramanathan, S. (2020). Antecedents of organic food consumption intention: A conceptual framework. Management Science Letters, 10(11), 2475-2484.

Alagarsamy, S.; Mehrolia, S.; & Mathew, S. (2021). How green consumption value affects- green consumer behaviour: the mediating role of consumer attitudes towards sustainable food logistics practices? Vision. in.sagepub.com/journals-permissions-India DOI: 10.1177/0972262920977986 journals.sagepub.com/home/vis.

Ali, M.; Ullah, S.; Ahmad, M. S.; Cheok, M. Y.; & Alenezi, H. (2023). Assessing the impact of green consumption behaviour and green purchase intention among millennials toward sustainable environment. Environmental Science and Pollution Research (2023) 30:23335–23347. https://doi.org/10.1007/s11356-022-23811-1.

Amin, S. & Tarun, Md. T. (2020). Effect of consumption values on customers' green purchase intention: a mediating role of green trust. Social Responsibility Journal. Emerald Publishing Limited, ISSN 1747-1117.

Bakir, A., & Eren, S. S. (2019). The effect of attitudes and subjective norms on consumers' intentions to purchase organic foods: Evidence from a developing country. Journal of Cleaner Production, 215, 798-805.

Baudry, J., Péneau, S., Allès, B., Touvier, M., Hercberg, S., Galan, P., Amiot, M.J., Lairon, D., Méjean, C., Kesse-Guyot, E. (2017) Food Choice Motives When Purchasing in Organic and Conventional Consumer Clusters: Focus on Sustainable Concerns (The NutriNet-Santé Cohort Study). Nutrients. 9(2) pii: E88. doi: 10.3390/ nu9020088.

Brandão, A.; Cupertino de Miranda, C. Does Sustainable Consumption Behaviour Influence Luxury Services Purchase Intention? Sustainability 2022, 14, 7906. https://doi.org/10.3390/ su14137906.

Department of the Environment, Food and Rural Affairs (DEFRA), United Kingdom (2002), Economic Evaluation of the Organic Farming Scheme, Final Report prepared by the Centre

for Rural Economic Research, Department of Land Economy, University of Cambridge, United Kingdom: www.defra.gov.uk/esg/economics/econeval/organic/.

Food and Agriculture Organization (FAO) of the United Nations, Italy (2002). Organic agriculture and sustainable agriculture and rural development: www.fao.org/organicag/doc/oa_sard.htm.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage Learning.

Hair, Jr., J. F.; Hult, C. T. M.; Ringle, C. M. & Sarstedt, M. (2022). A primer on partial least squares structural equation modelling (PLS-SEM) Third Edition. Sages Publications Inc.

Hayes, A.F. (2022) Introduction to mediation, mediation and conditional analysis: a regression-based approach, 3rd Edition, e-book, The Guilford Press.

Hughner, R. S., McDonagh, P., Prothero, A., Shultz II, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. Journal of Consumer Behaviour, 6(2-3), 94-110.

Ibrahim, M., & Hamid, N. (2020). Impact of perceived product attributes on purchase intention: A study of Nigeria's smartphone market. Management Science Letters, 10(6), 1347-1358.

IFOAM. (2020). What is Organic Agriculture? Retrieved from https://www.ifoam.bio/

Kamboj, S., Matharu, M. & Gupta, M. (2023). Examining consumer purchase intention towards organic food: An empirical study. Journal of Cleaner and Responsible Consumption 9 (2023) 100121.

Kardes, F. R., Cronley, M. L., & Cline, T. W. (2008). Consumer behaviour. Cengage Learning.

Kesse-Guyot, E., Péneau, S., Méjean, C., Szabo de Edelenyi, F., Galan, P., Hercberg, S., Lairon, D. (2013) Profiles of organic food consumers in a large sample of French adults: results from the Nutrinet-Santé cohort study. PLoS One. 8(10):e76998.

Kotler, P., & Keller, K. L. (2016). Marketing management. Pearson.

Leyva-Hernández, S.N.; Toledo-López, A.; Hernández-Lara, A.B. (2021). Purchase intention for organic food products in Mexico: The Mediation of Consumer Desire. Foods 2021, 10, 245. https://doi.org/ 10.3390/foods10020245.

Liebhardt, B. (2003). What is organic agriculture? What i learned from my transition. In Organisation for Economic Co-Operation and Development (OECD). Organic Agriculture: Sustainability, Markets and Policies. CABI Publishing.

Liu, C, Zheng, Y. & Cao, D. (2021) Similarity Effect and Purchase Behaviour of Organic Food Under the Mediating Role of Perceived Values in the Context of COVID-19. Front. Psychol. 12:628342. doi: 10.3389/fpsyg.2021.628342.

Lockeretz, W. (2003). What are the key issues for consumers? Organic Agriculture: Sustainability, Markets and Policies. Organisation for Economic Co-Operation and Development (OECD). CABI Publishing.

Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., Åberg, L., & Sjödén, P. O. (2003). Attitudes towards organic foods among Swedish consumers. British Food Journal, 105(3), 260-273.

Nosi, C.; Zollo, L.; Rialti, R. & Ciappei, C. (2019). Sustainable consumption in organic food buying behaviour: the case of quinoa. British Food Journal Vol. 122 No. 3, 2020 pp. 976-994 Emerald Publishing Limited 0007-070X DOI 10.1108/BFJ-09-2019-0745.

Olalekan, T. O., & Olajide, R. B. (2021). An empirical analysis of factors influencing purchase intention of Nigerian consumers. Journal of Economics and Sustainable Development, 12(6), 15-22.

Organisation for Economic Cooperation and Development (OECD) (2003). Environmental Indicators for Agriculture — Methods and Results, Volume 3, Paris, France.

Prigita, M. & Alversia, Y. (2022). Toward Consumer Sustainable Consumption: Examining Factors Influencing Green Product Purchase Intention. Marketing and Smart Technologies, (279), 307-317

Ukenna, S. I., Idoko, E. C. & Ogbari, M. E. (2018). Drivers of sustainable consumption in a developing Sub-Saharan African setting: Nigerian academic staff perspective. International Journal of Sustainable Society, 10(3), 203-224.

Varshneya, G., Pandey, S. K. & Das, G. (2017). Impact of Social Influence and Green Consumption Values on Purchase Intention of Organic Clothing: A Study on Collectivist Developing Economy. Global Business Review, 18(2),

Verain, M. C., Bartels, J., Dagevos, H., & Sijtsema, S. J. (2019). Motives of Dutch organic consumers and motives for not buying organic food. International Journal of Consumer Studies, 43(4), 345-355.

Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude-behavioural intention" gap. Journal of Agricultural and Environmental Ethics, 19(2), 169-194. doi: 10.1007/s10806-005-5485-3

Wojciechowska-Solis, J. & Barska, A. (2021). Exploring the Preferences of Consumers' Organic Products in Aspects of Sustainable Consumption: The Case of the Polish Consumer. Agriculture, 11(2), 138

Zayed, M.F., Gaber, H.R. and El Essawi, N. (2022). Examining the Factors That Affect Consumers' Purchase Intention of Organic Food Products in a Developing Country. Sustainability, 14(10) 5868

Zia, A.; Alzahrani, M.; Alomari, A.; AlGhamdi, F. (2022). Investigating the Drivers of Sustainable Consumption and Their Impact on Online Purchase Intentions for Agricultural Products. Sustainability, 14, 6563. https://doi.org/10.3390/su14116563.