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Green Food Buying Intention using the constructs of **the Norm Activation Model** as **moderators** among **tourists in Ghana**

Edward Markwei Martey[1] [martey.edward@ktu.edu.gh]

Eugene Okyere-Kwakye[2] [eugene.okyerekwakye@ktu.edu.gh]

Samuel Kwabena Ayittah[3] [kayittah.samuel@ktu.edu.gh]

Anne Renner[4] [anne.renner@ktu.edu.gh]

Racheal Rashida Larbi[5] [richealmartey123@gmail.com]

Abstract | This study investigates purchasing intentions within the framework of the theory of planned behaviour (TPB), extending its scope by incorporating additional dimensions: personal norms, awareness of consequences, and ascribed responsibility in the context of green foods. Data was collected from 456 tourists in Ghana through face-to-face interactions, using a cross-sectional and quantitative approach. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to assess the measurement model, test the hypotheses, and evaluate predictive relevance. The research reveals that attitudes toward green food (ATT), subjective norms of green food (SNN), number of children in a family (NCF), health benefits (HBF), and environmental issues (ENI) directly influence purchase intentions. Furthermore, personal norms (PN), awareness of consequences (AC), and ascribed responsibility (AR) positively moderate the relationships between attitudes toward green food, subjective norms of green food, and perceived behavioural control regarding purchasing intentions. This study provides valuable insights into the factors

[1] ORCID: https://orcid.org/0000-0003-0468-922. Koforidua Technical University.
[2] ORCID: https://orcid.org/0000-0003-0143-3222. Koforidua Technical University.
[3] ORCID: https://orcid.org/0009-0007-1736-2429. Koforidua Technical University.
[4] ORCID: https://orcid.org/0009-0005-2537-4935. Koforidua Technical University.
[5] ORCID: https://orcid.org/0000-0001-9965-2882. Ematon Consulting Ghana limited.

shaping tourist purchasing intentions. Consequently, marketing practitioners can tailor their strategies to align with the buying preferences of tourists in Ghana, specifically targeting green food products. This paper contributes to an underexplored area of research: understanding tourist purchasing intentions in Ghana. Prior studies on purchasing intentions have not extensively incorporated the extended TPB dimensions—number of children in a family, health benefits, and environmental issues—to comprehend this phenomenon.

Keywords | purchase, health, attitude, green foods, environment

1. Introduction

The genesis of the green foods movement arose as a response to conventional farming methods, heavily reliant on harmful chemicals like antibiotics, pesticides, and fertilisers, deemed hazardous to both human health and the environment (Xu et al., 2022; Wilkins et al., 2019). Over the past few years, the demand for green foods has surged and is projected to further escalate (Kement et al., 2024; Wahyuni et al., 2019). Global sales of green foods surpassed $132.74 billion in 2021, marking a considerable rise from nearly $18 billion in 2000.

More than 170 countries engage in green food production, encompassing over 80 million hectares of land in 2016. This accounts for roughly 68% of the agricultural land of the countries under study. Notably, Australia leads in adopting green management with 12.3 million hectares, although European countries predominantly manage the highest organically cultivated land (FAO, 2013; UNEP, 2022). The green food supply chain hinges on farmer training, stringent activity inspections, and compliance with specified practices and processes (Sultan et al., 2020). These green practices have enhanced consumer awareness and confidence in green food labels, advocating the necessity of producing food that meets green standards (Wang et al., 2022). The campaign asserting the irreplaceability of natural food has further heightened consumer awareness (Vargas-Sanchez et al., 2020).

From a supplier’s perspective, two predominant views have increased awareness in green farming: incentivising environmentally friendly farming practices and the financial benefits stemming from higher green food prices compared to conventional options (Soliman, 2021). Green food has found

substantial acceptance in Europe and North America, constituting around 90% of food sales (Vargas-Sanchez et al., 2020). However, the demand for green food in Ghana has risen gradually over the years, although it currently accounts for less than 1% of sales (Simonetti and Bigne, 2022). This situation significantly implies that the demand surge may be linked to the influx of tourists from these continents, making it crucial to comprehend the drivers of purchase intentions of tourists in Ghana toward green food.

Furthermore, much of the existing research on green food predominantly focuses on developed countries. For instance, studies examine markets in China, New Zealand, Brazil, and Spain, but there remains limited attention on green food research in developing nations, including Ghana (James et al., 2019; Aitken et al., 2020; Molinillo et al., 2020; Abbas, 2020). Hence, empirical studies have become increasingly essential.

Ghana welcomed approximately 623.5 thousand international tourist arrivals in 2021, expected to rise to 1.5 million by 2024 (Ghana census, 2021). This research aims to leverage the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and the Norm Activation Model (NAM) (Schwartz, 1977) to delve into the purchase intentions of tourists in Ghana. TPB will scrutinise direct effects while NAM will elucidate moderating effects. This study posits that tourist purchase intentions in Ghana are anchored in pro-environmental attitudes, health benefits, environmental concerns, family demographics, subjective norms, and perceived behavioural control. However, these theories' application in Ghana's context, particularly in green food purchase behaviour, remains limited.

Consequently, this research fills a critical gap in green food literature, specifically exploring the hypothesis that pro-environmental attitudes, subjective norms, and perceived behavioural control predict purchase intentions for green foods. It seeks to address key research questions:

1. How do consumer pro-environmental attitudes, family demographics, health benefits, environmental concerns, subjective norms, and perceived behavioural control influence purchase intentions for green foods?
2. To what extent do personal norms, awareness of consequences, and ascription of responsibilities moderate the relationships between attitudes, subjective norms, and perceived behavioural control affecting green food purchase intentions?

The study's contributions to TPB and NAM literature include:

1. Explication of the extent to which planned behaviour, personal norms, awareness of consequences, and ascription of responsibilities influence green food purchase behaviour, expanding the applicability of these theories within green food marketing.
2. Enhancement of comprehension regarding how personal norms, awareness of consequences, and ascription of responsibilities moderate relationships, an aspect scarcely explored in green food studies.
3. Provision of new insights into moderating variables significantly reinforcing relationships between planned behaviour and purchase intentions within green food marketing literature.

2. Theoretical framework

2.1. The concept of green food and purchase intention

The agricultural practices in Ghana rely on chemical inputs to boost production, leading to health and environmental concerns (McCarthy et al., 2016). Hazardous chemicals utilised in farming have driven many Ghanaians to seek food free from these substances, with a preference for green foods (Thøgersen et al., 2015). Green foods are natural products devoid of chemicals like pesticides, fertilisers, and antibiotics (Juhl et al., 2017).

Among the primary reasons for purchasing green foods are health considerations and environmental consciousness (Xu et al., 2022; Wang et al., 2022; Vargas-Sanchez et al., 2020). Consumers perceive green foods as nutritious, toxin-free alternatives superior to conventional foods (Molinillo et al., 2020; Abbas et al., 2020). Presently, consumers are conscientious about the food's nature and seek environmentally friendly products, supporting businesses that prioritise environmental sustainability (Abbas et al., 202; Oliveira, et al., 2023).

While customers generally recognise green foods, their understanding of what qualifies as 'green' is often inconsistent (Vargas-Sanchez et al., 2020). Many rely on labels and organic certifications for guidance (Aitken et al., 2020), yet confusion persists around the criteria, standardisation, and meaning of these indicators. In Taiwan, for example, customers express uncertainty and mistrust toward green food certifications (Wei & Yu-Hua, 2020), with factors like household background, education, and gender influencing their purchase intentions (Juhl et al., 2017).

Analysing customers' purchase intentions regarding green foods helps managers identify target groups that require particular attention (Morwitz et al., 2007). Purchase intention serves as a predictor of actual behaviour (Abbas et al., 2020), making this research critical for the success of the green food concept. Purchase intention begins at the pre-purchase stage, including factors influencing customer behaviour (McCarthy et al., 2016). Understanding customer attitudes and internal factors that shape purchase intentions is crucial for researchers seeking to forecast customer behaviour (Wei & Yu-Hua, 2020). Thus, this study conceptualises purchase intention as the level of readiness individuals have to buy green food.

2.2. Theory of planned behaviour

According to Ajzen (2005), an individual's intention serves as a precursor to their future actions, signifying their readiness and capacity to behave in a particular manner (Ajzen, 2022). Numerous studies have applied the Theory of Planned Behaviour (TPB) to examine purchase intentions (Elseidi, 2018; Wang et al., 2022). According to Ajzen (2020), the TPB suggests that intentions guide actions, helping to predict and explain consumer behaviour. Fundamentally, it argues that human behaviour is shaped by deliberate planning, as individuals rationally organise their actions to achieve desired outcomes (Ajzen, 2005, 2020).

Hence, the TPB delineates human behaviour through behaviour predictors, including attitude (ATT), subjective norm (SNN), and perceived behaviour control (PBBC), which collectively influence purchase intentions (PI).

However, minimal research has specifically focused on tourists in Ghana (Preko, 2021; Mohammed et al., 2021). Additionally, owing to TPB limitations, many researchers have extended its constructs to further elucidate purchase intentions. For instance, the study introduced variables like the number of children in a family, health benefits, and environmental concerns, suggesting a need for further investigation (Mohammed et al., 2021).

Extensions of the TPB have been instrumental in various contexts, such as customer intentions towards endorsing halal tourism (Preko et al., 2021) and purchasing halal cosmetics (Mohammed et al., 2021). These extensions significantly augmented the model's comprehensiveness and applicability. Some existing research (Katuk et al., 2020; Handayani et al., 2021; Fitra et al., 2021) has proposed that including additional constructs within the TPB framework would enhance its

predictive power, considering factors like past experiences, individual fears, moods, and resource requirements that influence purchase intentions. Consequently, the researchers formulated hypotheses based on this model for testing.

2.3. Hypotheses development

2.3.1. Attitude of green food (ATT)

Attitude, as defined by Ngah et al. (2021), represents an individual's positive or negative evaluation of actions based on their underlying motives, significantly influencing purchase intentions. It serves as a pivotal factor that dictates an individual's engagement and enables the execution of an activity. While previous research has consistently highlighted a strong relationship between Attitude (ATT) and purchase intention (PI), this relationship remains inadequately explored within Ghana's green food industry, particularly concerning tourists in the region.

Studies by Preko et al. (2021) and Fitra et al. (2021) suggest a link between attitude and non-Ghanaians' intention to visit tourist sites in Ghana, while Abbasi et al. (2021) found a negative effect of attitude on buying intention. Overall, individuals' decisions to engage in a behaviour, including purchasing green foods, are strongly influenced by their attitudes (Elseidi, 2018; Pratiwi, 2018).

This implies that tourists in Ghana are likely to make purchasing decisions regarding green foods based on their attitudes towards these products. However, there has been relatively limited exploration into the impact of ATT specifically on the purchase intentions of tourists in Ghana within the context of green foods. Hence, this leads to the proposition of the first hypothesis:

H1: ATT influence purchase intentions positively towards GF.

2.3.2. Subjective norm of green food (SNN)

The next TPB precursor, SNN, is the attitude concerning whether others or groups in a person's life will approve or disapprove of behaviour (Ajzen, 2020). Hence, SNN reflects the social pressure to engage or not engage in a specific behaviour (Zulkepeli et al., 2024; Xu et al., 2022)). According to Abbasi et al. (2021), SN is focused on primarily the approved or accepted behaviour of friends,

family and relatives. In the settings of green food social groups influence what tourist should buy or not (Fazili et al., 2023). Studies conducted by Chan et al., (2022), and Fazili et al., (2023), have suggested a potential linkage between SNN and the intention of consume green product. This implies that tourists in Ghana are likely to make purchasing decisions regarding green foods based on their societal pressure. Nevertheless some past studies reveal a negative prediction between SNN and PI (Abbasi et al. 2021; Koay et al., 2024) henceforth, there are contradictory findings about how SNN relates to PI. Hence, this leads to the proposition of the second hypothesis:

H2: SNN positively influences purchase intentions towards GF.

2.3.3. Perceived Behavioural Control (PBBC)

Perceived Behavioural Control (PBBC) refers to 'people's perception of the ease or difficulty of performing a particular behaviour' (Ajzen, 2022). It plays a crucial role in determining an individual's engagement in a behaviour, as it influences one's self-confidence in maintaining intentions (Ajzen, 2005). The amalgamation of intentions and PBBC enables the prediction of human behaviour (Ajzen, 1991). PBBC is essentially the perceived ease or difficulty a person encounters while engaging in an activity. As Ajzen (1991) asserts, the level of control a person perceives over their behaviour and their confidence in executing a task directly influences the likelihood of making a purchase, such as buying green foods.

Research by Elseidi (2018) highlights the significant impact of PBBC on the purchase intention (PI) of green foods. Tourists meticulously contemplate and regulate their actions, wherein PBBC plays a crucial role. Moreover, there has been limited attention given to evaluating the influence of PBBC on the purchase intention of green foods among tourists in Ghana in past literature. Therefore, the researchers propose the formulation of the third hypothesis to address this gap:

H3: PBBC positively influence the purchase intention towards GF.

2.3.4. Number of children in a family (NCF)

The number of children in a family (NCF) plays a significant role in influencing consumer purchase intentions, with households having more children tending to purchase more green foods (Shabbir et al., 2020; Molinillo et al., 2020). However, the attitudes of families towards green foods, as

reported by Shin and Jung (2019), present a different perspective. Furthermore, studies by Shamsi and Najafabadi (2020) and Molinillo et al. (2020) suggest that the presence of children in a family might not significantly impact the purchase intentions related to green foods.

The impact of the number of children in a family (NCF) on green food purchasing shows mixed results. While Riphah et al. (2022) and Bhattacharjee and Nandi (2021) found a positive correlation, Riphah et al. (2022) also reported a negative relationship with buying intentions. These discrepancies may be due to cultural differences, demographics, or research timing. Additionally, the lack of awareness or interest in green foods within certain study populations could contribute to these disparities. Conversely, increasing knowledge and awareness of green foods could potentially alter the expectations associated with demographics. The researchers propose the fourth hypothesis ahead:

H4: NCF positively influences the purchase intention towards GF.

2.3.5. Health benefits (HBF)

Green food purchases by individuals are primarily driven by the perceived health benefits associated with these choices (Ditlevsen et al., 2019; Kushwah et al., 2019). Consumers commonly attribute health advantages to green foods, believing them to be free from harmful chemicals (Janssen, 2018). Interestingly, despite customers' perception that green foods are healthier, studies like that of Dahai et al. (2022) indicate that there might not be a significant nutritional difference between green foods and conventional alternatives. Nonetheless, various research consistently highlights that consumers opt for green foods due to perceived health benefits (Asad et al., 2022; Shin & Jung, 2019; Molinillo et al., 2020). Many customers hold the belief that the nutritional value of green foods surpasses that of conventional options (Niehuns et al., 2022).

In a study conducted by Riphah et al. (2022), participants were categorised as occasional and regular buyers of green foods based on their purchase frequency. Interestingly, the research discovered that ethics significantly influenced the buying intentions of regular buyers, whereas safety considerations were more influential for occasional buyers. This finding led to the formulation of the subsequent hypothesis:

H5: HBF positively influences the purchase intention towards GF.

2.3.6. Environmental issues

Environmental issues (ENI) reflect individuals' concern about the environmental impact of their actions and their willingness to help address such problems (Li et al., 2016). This concern often motivates them to support environmental conservation through green food consumption (Hasnah Hassan, 2014). Studies have consistently shown that customers' environmental concerns significantly influence their choice to purchase green foods (Shamsi & Najafabadi, 2020; Molinillo et al., 2020). However, contrasting findings in past research suggest that health consciousness may outweigh environmental considerations in driving green food purchases (La Barbera et al., 2021; Ali Bukhari et al., 2022). Additionally, factors such as animal welfare (Molinillo et al., 2020) and taste preferences (Dahai et al., 2022) serve as antecedents to green food consumption.

The emphasis customers place on environmental protection significantly shapes their inclination toward purchasing green foods. Conversely, individualistic tendencies tend to negatively impact attitudes toward green food (Asad et al., 2022). Hoefkens et al. (2019) suggested that individuals who opt for green food prioritise internal values, such as self-respect, over external considerations (Zahid et al., 2022). Furthermore, individuals exhibiting strong social relationships have shown a preference for environmentally-friendly food choices. This finding led to the formulation of the subsequent hypothesis:

H6: ENI positively influences the purchase intention towards GF.

2.4. Moderating role of NAM

The study investigated the moderating role of Personal Norm (PN), Awareness of Consequences (AC), and Ascription of Responsibility (AR) on the original constructs of the Theory of Planned Behaviour (TPB). These moderating variables were selected for specific reasons based on prior research findings. For instance, Vanany et al. (2020) highlighted a significant correlation between ATT and buying intention, while SNN and PBBC were deemed insignificant toward PI. In contrast, Rachbini (2018) demonstrated a significant and positive relationship between ATT, SNN, PBBS, and PI. Similarly, Sosianika and Amalia (2020) revealed a comparable outcome among millennial Muslim customers. Conversely, Pratiwi (2018) found insignificant relationships between PI, ATT, SNN, and PBBC.

The contradictory findings in various studies prompted the introduction of these variables as moderators to augment the existing TPB framework. This allowed a closer examination of the specific contexts wherein TPB and NAM constructs exert the most profound influence on the intention to purchase green food. The inclusion of mediating variables stemmed from several considerations. Firstly, inconsistencies in past findings, as suggested by Ho et al. (2022), often necessitate the introduction of mediating variables when predicting variables that display inconsistencies or weaknesses.

Secondly, PN, AC, and AR were proposed as mediators between TPB constructs and purchase intention in line with the contingency theory, suggesting that the correlation between two variables depends on a third variable. This recommendation aimed to enhance understanding and mitigate inconsistencies among SNN, ATT, and PBBC, as highlighted by Amalia et al. (2020).

Thirdly, the selection of PN, AC, and AR as mediating variables was based on recommendations by Aykol (2021) and Pop et al. (2022), as well as health-related perspectives from Mohammed et al. (2021), where these variables were previously used as moderating factors to explain various behaviours within the TPB framework.

Fourthly, criticism of TPB for its limited focus on ATT, SNN, and PBBC without accounting for moral values that may influence pro-environmental practices was addressed. Raghu and Rodrigues (2020) highlighted this limitation, advocating for the incorporation of moral duties toward the environment. Therefore, the study integrated NAM to address moral responsibilities through PN. Combining TPB and NAM facilitated an understanding of undecided attitudes by delving into emotional aspects of behaviour and how moral values could resolve conflicting attitudes, shedding light on the emotional complexities behind environmentally conscious actions.

Previous studies have successfully merged TPB and NAM models in various contexts, such as pro-social behaviour intentions (Savari et al., 2023), shopping choices (Nguyen, 2022), and eco-friendly decision-making (Han and Hyun, 2017), demonstrating strong support for purchase intentions. Hence, the research proposed the following hypotheses:

H7: AR moderates the correlation between ATT and PI.

H8: AC moderates the correlation between SNN and PI.

H9: PN moderates the correlation between PBBC and PI.

Table1| Measurement constructs

Constructs	Loadings
Attitude (Ajzen (1991))	
Green food practice is important	0.779
Green behaviour is valuable	0.889
Green food is the right choice to make	0.870
Green foods practice is favorable	0.708
Subjective norm (Ajzen (1991))	
My colleagues think that I must buy green foods	0.885
My relatives want me to buy green food	0.809
My family members want me to buy green foods	0.823
Perceived behavioural control (Ajzen (1991))	
I will buy green food	0.879
It is very easy to buy green food	0.823
I will make a decision to buy green food	0.873
Health benefits	
I buy green food because of nutritional content	0.872
Green food is healthy	0.967
Green food do not contain preservative	0.980
Green food is without chemicals	0.967
Environmental issues	
Conventional food degrades the environment	0.812
I support green orientation projects	0.854
Green food preserves the environment	0.949
Number of children in a family	
I buy green food because of my children	0.809
I buy more green food because of my children	0.890

Purchase Intention (Japutra et al., 2021)	
I will inspire colleagues to buy green foods	0.901
I will recommend green foods to others.	0.807
I endorse green foods to others	0.980
Awareness of consequences	
The environment is getting worse	0.881
Degraded environment harm people	0.805
The coming years, many spices will died	0.808
Ascribed responsibility	
Every individual must protect the environment	0.785
I feel it is my responsible to solve environmental issue.	0.776
Personal norm	
I sense it is moral responsibility to care for the environment	0.809
I sense that I must care for the environment	0.99
I feel it is essential to safeguard the environment	0.987
Due to my values I feel to behave in a way to protect the environment	0.897

Source: Own elaboration

Table 2| Reliability and validity

Constructs	CA	CR	AVE
Attitude of green food	0.897	0.885	0.967
Subjective Norm of green food	0.883	0.880	0.954
Perceived Behavioural Control	0.866	0.894	0.850
Number of children in a family	0.906	0.898	0.894
Health benefits	0.889	0.821	0.843
Environmental issues	0.804	0.964	0.899
Personal norm (PN)	0.819	0.877	0.954
Awareness of consequences (AC)	0.800	0.890	0.807
Ascription of responsibility (AR)	0.907	0.800	0.887
Purchase intention (PI)	0.883	0.842	0.870

Source: Own elaboration

3. Methods

3.1. Research design and population

The researchers adopted a cause-and-effect survey design within a quantitative methodology to closely control variables affecting purchase intentions and establish causal relationships between them (Hair et al., 2016). Tourists in Ghana were specifically targeted for this study due to their discerning choices in food while away from home. Studies have indicated that tourists travelling with families and children tend to purchase more green foods (Shabbir et al., 2020; Molinillo et al., 2020). Moreover, tourists often spend money accumulated from various countries during their stay in Ghana, presenting an opportunity for Ghana to benefit from this spending. Additionally, the Government of Ghana launched initiatives such as the 'Year of Return' and 'Beyond the Return' in 2019, aimed at endorsing Ghana to the global community (Preko, 2021) (Figure 1).

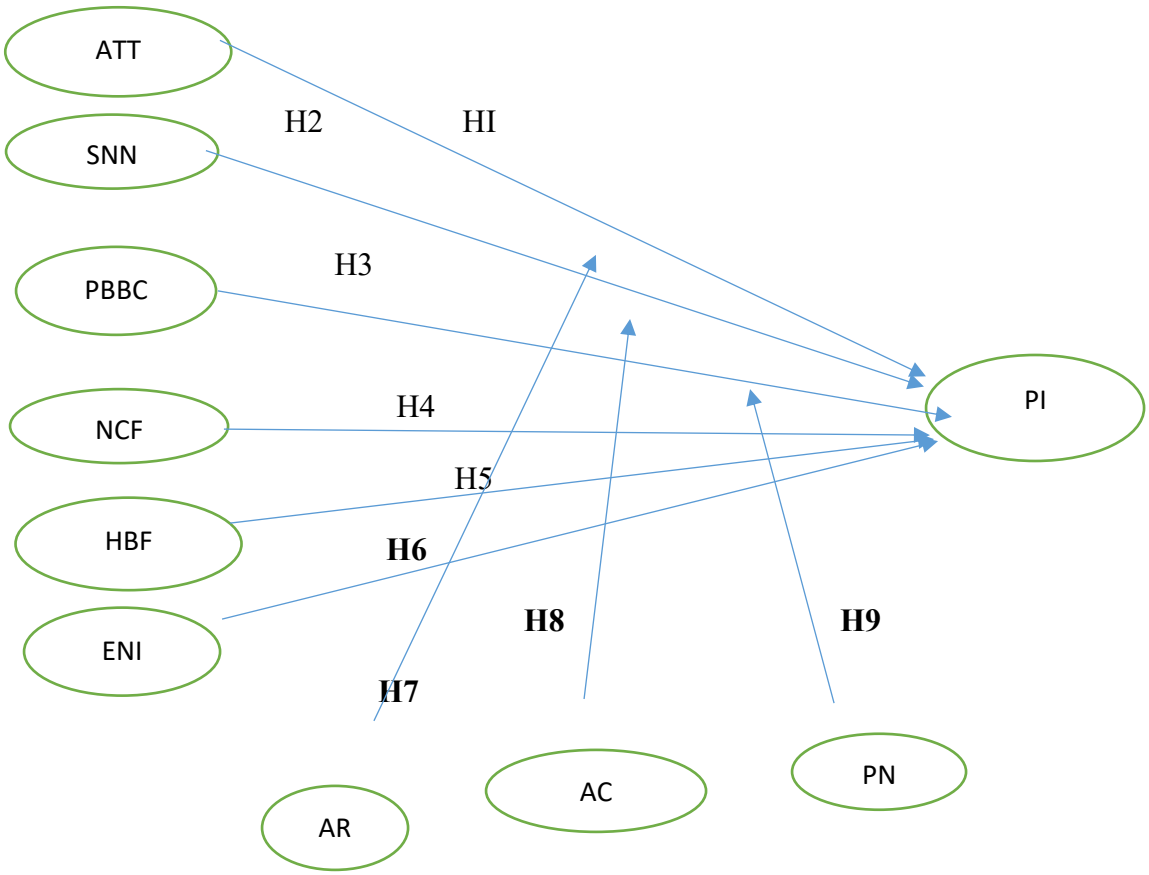

Figure1 | Conceptual framework
Source: Authors' construction (2024)

3.2. Instrumentation and data collection

The research instrument was developed following Churchhill's (1979) sequential processes. Initially, an extensive review of literature on green foods was conducted. Subsequently, through focus group discussions and interviews with tourists, the main domains of items from this literature were identified. These items were then refined with input from experts in green food, leading to their assessment using Exploratory Factor Analysis (EFA), reliability analysis, Content Validity Index (CVI), and Content Validity Ratio (CVR).

Two primary types of factor analysis exist: exploratory and confirmatory. While Confirmatory Factor Analysis (CFA) assumes every variable can be measured based on a single factor and tests the data's correlation structure against a hypothesised structure, EFA, according to Hair (2020), reduces data into a smaller set of variables to unveil the underlying theoretical structure. EFA was chosen due to observed linear relationships among variables; however, its reliability diminishes if this assumption is not met.

Content Validity Index (CVI), typically employed in quantitative analyses, was used to measure the appropriateness of items for assessing constructs under study (Fuller et al., 2016). The accuracy of construct measurement relies heavily on the quality of content validity (Podsakoff & Organ, 1986). Nonetheless, the precision of CVI hinges on experts' judgments, leading to varying opinions and interpretations (Sullivan et al., 2005).

Structured questions encompassing all investigated constructs were used and rated by green food experts on a four-point scale. All items scored above the CVR threshold of 0.78, indicating strong content validity (Hair, 2022). Seven tourists served as judges in a qualitative validation process, identifying and rectifying minor issues in the instrument. EFA results indicated a Kaiser-Meyer-Olkin (KMO) of 0.787 and Bartlett's test of sphericity, affirming the suitability for factor analysis. The loading of constructs in table 2, all surpassing the 0.5 threshold, signifies the validity of all items.

A pre-test survey involving 33 green food consumers was conducted to address potential issues of clarity, relevance, reliability, and suitability in the questionnaire before finalising it in line with the study's objectives. To improve response rates and mitigate non-response bias, respondents were informed beforehand, following Ali et al.'s (2021) suggestion. All questions were presented in

English, and respondents received guidance during the response process. Non-response bias, where respondents are hesitant or unable to answer survey questions, was minimised (Hair et al., 2020).

Primary data collection occurred from March to July 2023, employing purposive sampling at prominent food retail centres in Accra. Face-to-face interviews targeted Ghanaian tourists purchasing green foods. Rigorous screening ensured respondents had adequate knowledge and intentions to buy green foods, crucial for addressing the research questions. Purposive sampling was used to recruit a specific population, ensuring homogeneity to enhance statistical significance. However, since participant selection is subjective, this method can introduce bias. To address this, the researchers clearly defined the target population and ensured representation across relevant groups.

To prevent family and friends from skewing responses, questionnaires were staggered. The first 20 respondents were selected based on income, education, and occupation criteria and were not family members. Subsequent distribution followed similar screening practices.

4. Results

Demographic data from 456 tourists revealed that the majority were from Asia (47%), mostly females (42%), aged between 30-38 years, with a majority being graduates (54%) and visiting with their families (57%) as indicated in table 1. These demographics differed from previous studies (Savari et al., 2023; Nguyen, 2022; Raghu, 2020; Rahnama, 2017) due to variations in geographic locations and sampled populations.

Table 3| Heterotrait-monotrait ratio (HTMT

	ATT	SNN	PBBC	HBF	ENI	NCT	AR	AC	PR	PI
ATT										
SNN	0.660									
PBBC	0.695	0.860								
HBF	0.775	0.775	0.633							
ENI	0.894	0.844	0.880	0.906						

NCT	0.743	0.770	0.892	0.996	0.992					
AR	0.856	0.776	0.799	0.932	0.886	0.876				
AC	0.756	0.785	0.784	0.802	0.756	0.821	0.886			
PR	0.657	0.967	0.657	0.765	0.772	0.887	0.742	0.886		
PI	0.876	0.754	0.775	0.832	0.646	0.887	0.776	0.879	0.978	

(Source: Own elaboration)

Table 4 | VIF, R2 and Q

Constructs	VIF
ATT	2.089
SNN	2.095
PBBC	1.675
HBF	1.875
ENI	2.095
NCT	2.944
AR	2.023
AC	1.856
PR	1.334
PI	1.644
Q2	38.8
R2	68.7

(Source: Own elaboration)

The reliability of the items of the construct and the outcome of the average variance were presented in tables 2 and 3. Besides, the convergent and discriminant validities were tested. The researchers tested to find out the deviation of the data collected from normality and realised that all the items in the construct are more than 0.5, showing there is no nonconformity from normality (Brown, 2006) (Table 4). The study is cross-sectional in the data collection and requires common method bias (CMB) analysis. Due to the similarity of the words of the items, location and medium in the survey, it will probably generate a similar response (Podsakoff and Organ, 1986). To address potential bias, the common method bias was assessed to gauge any distortion of significant

interaction effects in the survey data. The researchers adopted the Harman single-factor approach and principal component analysis. All 22 items of the constructs were simultaneously loaded, yielding an acceptable total variance of 44% (<50%) (Podsakoff et al., 2003). This demonstrated the absence of common method bias. However, it is impracticable for the single-factor model to fit the entire data especially when the variables under consideration are many (Chang et al., 2010). In table 2, all the 22 items of eight constructs and the sources of the measurement are presented.

The research drew on previous studies on tourists in Ghana (Preko et al., 2021; Mohammed et al., 2021; Preko & Gyepi Garbrah, 2021) to justify an estimated sample size of 500 respondents, exceeding the recommended minimum of 400 for generalisability (Hair et al., 2010). Of the 500 tourists surveyed, 364 responded—representing 72.8% of the total—which falls within acceptable limits and shows no indication of response bias (Hair, 2008). This confirms that the data is suitable for analysis.

4.1. Measurement model: Reliability and validity

The researchers examined the proposed conceptual framework using Structural Equation Modelling (SEM), specifically the Partial Least Squares SEM (PLS-SEM) technique. This approach was chosen for several reasons. First, PLS-SEM is robust and well-suited to the nature of the research. Second, it is considered a more flexible and powerful statistical tool compared to covariance-based SEM (CB-SEM) (Urbach & Ahlemann, 2010). In situations where the sample size is relatively small, the appropriate tool to analyse the data is PLS-SEM as is the current study (Hair et al., 2014). Conferring to the study of Hair et al., (2020) there are two categories of PLS-SEM analysis: a measurement model and a structural model. The measurement model assesses the reliability and validity of the constructs, while the structural model evaluates the strength of the relationships between them (Hair et al., 2014). To apply the measurement model, the researchers followed the two-step approach proposed by Hair et al. (2014). All construct items were examined to confirm both their reliability and validity.

The validity of the constructs was measured using Cronbach's alpha (CA) and composite reliability (CR). Validity ensures actual variable under consideration is measured accurately (Hair et al., 2010). The results indicate that the model is reliable, as shown in Table 3, with both CR and CA

exceeding the recommended threshold of 0.7 (Hair et al., 2014). Reliability refers to the extent to which the measured constructs can consistently reproduce similar results in repeated studies.

The Convergent and discriminant test was conducted using Average Variance Extracted (AVE) (Fornell and Larcker 1981). All the AVEs are bigger than the accepted threshold of 0.5 in table 3, thus confirming their adequacy for this study. Besides, the discriminant validity test was conducted using the Heterotrait-Monotrait (HTMT) ratio recorded that all the values were below 0.85 (Hair et al., 2020).

The Variance Inflation Factor (VIF) values for all variables indicated no multicollinearity issues, as shown in Table 4, with all values below the recommended threshold of 10 (Hair et al., 2020). Additionally, the coefficient of determination (R^2) was calculated to assess the model's quality. The R^2 value of 0.687 indicates that the independent variables explain 68.7% of the variance in the dependent variable.

The study adopted the Non-parametric 5,000 replicate bootstrapping proposed by Hair et al., (2016) to test the six direct hypotheses. The bootstrap method measures the uncertainty of estimates of a statistic of interest (Davison and Hinkley 1997). The researchers used it because they avoid making distributional assumptions.

Hypotheses one, two, three, four, five and six were confirmed including (H1) ATT to PI ($\beta = 0.469$; $t = 4.076$; $p = 0.001$), (H2) SNN to PI ($\beta = 0.376$; $t = 3.890$; $p = 0.001$), (H3) PBBC ($\beta = 0.339$; $t = 3.764$; $p = 0.002$), (H4) NCF to PI ($\beta = 0.440$; $t = 4.042$; $p = 0.001$), and (H5) HBF to PI ($\beta = 0.421$; $t = 6.090$; $p =$ (H6) ENI to PI ($\beta = 0.398$; $t = 9.076$; $p = 0.001$). Therefore all the direct hypotheses were supported.

4.2. Mediating effects

Mediation effect is the contribution of an independent variable on the dependent variable through a third variable called mediator (Hair, 2010).The study demonstrated mediating effects ATG*AR-PI (H7) ($\beta = 0.390$; $t = 8.007$; $p = 0.002$) (H8) SNN*AC-PI ($\beta = 0.422$; $t = 3.976$; $p = 0.001$) (H9) PBB *PN-PI ($\beta = 0.178$; $t = 7.809$; $p = 0.002$) (Table 5). This means that H7, H8 and H 9 signify the mediating effect of PR, AC and AR on the constructs of TPB.

Table 5| Hypothesis Testing

Hypothesis	Relationships	Beta	T- test	P- values	Decisions
H1	ATG*PI	0.469	4.076	0.001	Supported
H2	SNG*PI	0.376	3.890	0.001	Supported
H3	PBBCG*PI	0.339	3.764	0.002	Supported
H4	DEG*PI	0.440	4.042	0.001	Supported
H5	HBGF*PI	0.421	6.090	0.001	Supported
H6	ENG* PI	0.398	9.076	0.001	Supported
H7	ATG*AR-PI	0.390	8.007	0.002	Supported
H8	SNG*AC-PI	0.422	3.976	0.001	Supported
H9	PBBCG*PN-PI	0.178	7.809	0.002	Supported

(Source: Own elaboration)

5. Discussion

The study primarily focused on investigating the purchase intentions of tourists in Ghana regarding green food. The research assessed the viability of extending the TPB and contributed substantively to both theoretical and managerial aspects of literature. This involved the amalgamation of TPB and NAM in the research framework.

The research findings highlighted the significantly positive influence of attitude on purchase intentions toward green food. This association seemed linked to health perceptions and environmental concerns associated with green food. Additionally, supplementary services offered by food retail, such as free delivery, electronic payment acceptance, and eco-friendly dishware, may have influenced Ghanaian tourists' intentions toward green consumption. Past studies (Molinillo et al., 2020; Ngah et al., 2021; Abbasi et al., 2021) support the pivotal role of attitude as a predictor of purchase intentions. Thus, fostering a favourable attitude among Ghanaian tourists toward green food could boost their purchase intentions.

Moreover, the study highlighted the significant positive impact of subjective norms (SNN) on the purchase intentions of Ghanaian tourists regarding green food. This alignment of societal opinions may stem from social pressures prevalent in highly collectivistic societies like those found in Ghana. This contrasts with findings by Abbasi et al. (2021) suggesting that SNN does not

significantly impact purchase intentions. The collectivistic nature of Ghanaian society might reinforce their inclination toward purchasing green food.

Furthermore, perceived behavioural control overcame barriers and significantly contributed to purchase intentions for green food. This aligns with existing literature (Obuobi et al., 2022; Elseidi, 2018), although findings by Abbasi et al. (2021) contradicted this relationship. The challenge in identifying retail outlets selling green food might hinder green consumption behaviour among non-tourist contexts, potentially impacting the results. Abbasi et al.'s focus on general food as opposed to this study's specific emphasis on green food might contribute to these divergent findings.

The study also revealed the significant influence of family size on purchase intentions, in contrast to findings by Shabbir et al. (2020). This suggests that tourists purchase green food mainly for household consumption, corroborated by Asad et al. (2022). However, cultural differences and population demographics may contribute to the inconsistency in results. Furthermore, the inclusion of family size as an extension to the TPB model contributed to the literature on green food.

Additionally, the study found a significant relationship between health benefits and purchase intentions. This connection is possibly due to green food's attributes, such as being chemical-free, additive-free, nutritionally rich, and complemented by services aligning with tourists' country practices. Certification from appropriate bodies vouching for the naturalness of green food might boost confidence and purchase intentions among Ghanaian tourists. This aligns with previous research (Asad et al., 2022; Shin & Jung, 2019; Molinillo et al., 2020), emphasising the importance of health benefits in purchase intentions. The study's findings on the health benefits of green food contributed to enriching the TPB model.

Moreover, environmental concerns positively influenced purchase intentions, consistent with other studies (Shamsi & Najafabadi, 2020; Molinillo et al., 2020). This underscores the significance of environmental considerations in Ghanaian tourists' decision-making processes. Protecting the environment emerged as a pivotal factor attracting tourists to purchase green food, aligning with existing research (Hoefkens et al., 2019). This extension of the TPB model by incorporating environmental variables advances understanding in green food literature.

Furthermore, the study revealed the moderating role of PN on the relationship between attitude and purchase intentions. This mirrors previous findings (Arjen, 1991; Schwartz, 1977) suggesting that PN instils moral responsibility toward environmental protection, which, according to Kals and

Maes (2002), is crucial for green consumption. PN's moderating effect has been evident in various studies (Rahnama, 2017; Nguyen, 2022; Raghu, 2020) on green consumption and aligns with Savari et al.'s (2023) findings on PN as a predictor of environmental protection intentions. This reinforces the TPB model by offering deeper insights.

Finally, the study demonstrated that awareness of consequences moderates the relationship between subjective norms and purchase intentions. Ghanaian tourists who are aware of the consequences of not consuming green food and the benefits of purchasing it are likely to intensify their purchase intentions. This is consistent with past research (Obuobi et al., 2022), emphasising the need to highlight the benefits of green food consumption. Societal acceptance of the green concept shapes customer intentions, as suggested by Ajzen (2022), further highlighting the influential role of society on individual activities. The opinions of groups of Ghanaian tourists act as reference points in their purchase intentions, enhancing the understanding of the TPB model (Mohammed et al., 2021; Preko, 2021). The comprehensive insights provided by this study contribute significantly to the understanding of tourists' purchase intentions toward green food and extend the existing theoretical frameworks, especially the TPB model, in the context of Ghanaian tourists.

5.1. Implications for theory and practice

This research makes a valuable contribution by exploring the largely understudied area of green food purchase intentions among tourists in Ghana, uniquely combining the TPB and the NAM. Firstly, the study revealed that customers succumb to social pressures from family and peers when deciding to purchase green foods. Consequently, leveraging socially influential figures in green food advertisements could effectively influence purchase intentions. Secondly, emphasising the health benefits of green foods, a finding consistent with prior research (Asad et al., 2022; Shin & Jung, 2019; Molinillo et al., 2020), is recommended in communications regarding green foods. Stressing these health advantages, alongside the measures on the positive impact of green foods on human health and the environment, could significantly increase purchase intentions. Government agencies, such as the Ministries of Agriculture and Health, should consider policy initiatives promoting the use and consumption of green foods to enhance public health and reduce healthcare costs. Successful policy implementation would require extensive education, affordable pricing, and widespread availability of green foods to influence public acceptance. Thirdly, marketers should

address environmental concerns related to green foods, drawing from studies (La Barbera et al., 2021; AliBukhari et al., 2022). The green food industry in Ghana should emphasise environmental protection in their communication strategies. Increasing awareness about sustainable farming practices can help individuals appreciate the inherent value, potentially overcoming the perceived limitations of higher pricing associated with green foods (Savari et al., 2023; Raghu, 2020).

The study expanded upon prior research on green foods, establishing the significant positive influence of SNN, ATT, and PBB on purchase intentions for green foods. Moreover, tourists' attitudes toward green foods directly impact their purchase intentions. Therefore, marketing efforts should evoke emotional responses in tourists, emphasising the health benefits of green foods to reduce healthcare costs. Government and health agencies should play a role in fostering positive attitudes by ensuring transparency from green food producers regarding ingredients and production conditions and integrating all company activities into a green food culture.

The research findings also indicated that PBBC significantly influences customers' purchase intentions for green foods. Accordingly, the Government of Ghana should invest more resources in the Green Ghana project to foster a culture prioritising health and environmental concerns. Increased understanding of the concept of green foods is likely to lead to greater acceptance, underscoring the need for educational initiatives emphasising the associated benefits.

6. Conclusion

In conclusion, the researchers explored the purchase intentions of tourists in Ghana regarding green foods. The study introduced a theoretical conceptual model that merged the TPB and NAT constructs as mediating variables to analyse tourists' purchase intentions toward green foods. The findings revealed that ATT, SNN, and PBBC significantly influence consumers' intention to purchase green food.

This study represents a novelty in the field as it addresses a gap in the literature regarding predictors of purchase intentions among tourists in Ghana, specifically relating to green food. Notably, it contributes to the existing literature by demonstrating the significant predictive value of all variables concerning tourists' purchase intentions for green foods.

Moreover, the research underscored the significant moderating effects of personal norms, ascribed responsibility, and awareness of consequences. These findings suggest that these variables enhance

the relationship between TPB constructs and buying intentions for green food, enriching the literature on marketing strategies for green foods.

In a contextual sense, this research stands as the pioneering attempt to examine tourists' purchase intentions toward green foods in Ghana by integrating two theories. The TPB, serving as the foundational theory, emphasises ATT, SNN, and PBBC in relation to purchase intentions for green foods. Additionally, the NAT theory, encompassing personal norms, ascribed responsibility, and awareness of consequences, further supported and contributed through moderation interaction effects, enriching theoretical literature.

The study's findings hold relevance for green food policymakers, marketing practitioners, and producers. By amalgamating two theories to test tourists' buying intentions in Ghana, this research adds to the existing literature on green foods. It also suggests that a promising future for green food demand in Ghana exists if policies supporting green foods are fully implemented.

While the studies delve into factors influencing purchase intentions, certain limitations highlight opportunities for future scholars. A purposive sampling technique was employed to gather data from tourists in Ghana, which might have resulted in unequal respondent selection. Future research could benefit from adopting a probability sampling approach for a more equitable selection process. Additionally, although the study utilised a quantitative approach to address the research question, employing the same framework with a qualitative method could offer a comprehensive examination of purchase intentions.

Furthermore, the study expanded TPB by incorporating health benefits, environmental concerns, demographic data, and PN, AC, and AR to enhance the comprehension of purchase intention. Subsequent research could encompass additional factors like cultural influences and individual interests, which may also shape purchase intentions.

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