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An Extended Theory of Planned Behaviour framework on the purchase decision towards gari and beans dish among undergraduates

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Abstract

This study evaluated the determinants of undergraduate student's purchase decisions regarding 'gari and beans' at the University of Education, Winneba (UEW), Ghana. Grounded in an extended Theory of Planned Behaviour (TPB) framework combined core socio-cognitive constructs of Attitude, Subjective Norms, and Perceived Behavioural Control with key marketing mix variables: Pricing, Location, and Packaging. A quantitative cross-sectional survey design was conducted using a pre-tested questionnaire administered to students across campus eating joints. Out of 400 distributed questionnaires, 152 valid responses were analysed using descriptive statistics and Ordinary Least Squares (OLS) multiple linear regression analysis via IBM SPSS Version 27. The sample demographic profile revealed a male majority (65.8%) with a mean age of 24.54 ± 4.83 years, and over half operating on monthly allowances below GHC 500.00. The regression model proved statistically significant [$F(6,145) = 38.14, p < 0.001$], explaining 61.2% of the variance ($R^2 = 0.612$) in purchase decisions. Pricing emerged as the strongest predictor ($\beta = 0.310, p < 0.001$), followed by Attitude ($\beta = 0.284, p < 0.004$), Location ($\beta = 0.195, p = 0.001$), Perceived Behavioural Control ($\beta = 0.168, p = 0.004$) and Subjective Norms ($\beta = 0.115, p = 0.026$). Packaging was not statistically significant ($\beta = 0.082, p = 0.090$). Findings emphasize that financial constraints and accessibility heavily drive campus meal choices.

Keywords: Theory of Planned Behaviour, Gari and Beans, Purchase Decision, Price Sensitivity, Undergraduate students.

Introduction

A healthy diet helps protect humans against malnutrition in all its forms, as well as the prevention of noncommunicable diseases (NCDs), including diabetes, heart disease, stroke, and cancer (World Health Organization, 2019). Noncommunicable diseases (NCDs) account for 71% of annual global mortality, with more than 80% of these deaths occurring in low- and middle-income countries (LMICs) (World Health Organization, 2018). Cowpea (*Vigna unguiculata*) is frequently used in food aid programmes to combat malnutrition and the incidence of NCDs in Africa (Asiwe & Asiwe, 2023). Cowpea is a vital protein source, especially in areas with limited access to animal protein (Miralles et al., 2019). Common varieties (*Phaseolus vulgaris*) can contain up to 25% protein on a dry weight basis (Beebe et al., 2013). Additionally, dietary fibre from cowpea can improve glycaemic control and insulin sensitivity, contributing to the prevention and management of type 2 diabetes (Hossain et al., 2026).

The crop is both nutritious and affordable in most regions of the world providing macro and micronutrients including iron, zinc, and folate, important for various bodily functions (Cai et al., 2024). The adaptability of cowpeas makes it an important food security crop in many African countries (Omomowo & Babalola, 2021). In West Africa, cowpeas and other legumes provides 20-50% of daily protein intake, especially where animal protein is scarce and/or expensive (Kyei-Boahen et al., 2017).

Cowpeas are typically consumed with other staple foods in Ghana, creating a complete protein source with other food nutrients like carbohydrate, vitamins and minerals (Armar-Klemesu et al., 2018). The combination of such staple foods like Gari (processed cassava, *Manihot spp.*) with cowpeas, results in 'Gari and beans' a Ghanaian staple food commonly known as (*yo ke gari or gobe*) (Annan et al., 2022; Mensah & Oyeboode, 2022). As a product of cassava, gari provides a substantial amount of carbohydrates, serving as a key energy source (Amissah et al., 2025). Gari is a granular flour traditionally made from fermented, grated, and dried cassava tubers (Babarinsa et al., 2018). During gari processing, fermentation takes place which helps reduce the level of cyanide in the flour (Oloya et al., 2024). Dishes that combine of Gari and cowpea (Gari and bean), is a popular and affordable dish in Ghana, especially in the southern regions of the country (Annan et al., 2022). The dish is widely consumed among low-income populations and students at senior high schools and universities in Ghana, offering a valuable source of protein, carbohydrates, and other essential nutrients (Aryeetey & Ramos, 2022).

There is however limited empirical data of the factors influencing university students' choices and preferences for 'gari and bean' especially students at the University of Education, Winneba. It is widely agreed that young people are vulnerable to poor health (Vrinten et al., 2023), because they are going through an important life stage where they are developing lifestyle habits which shapes (McNamara et al., 2022). Therefore, understanding the factors influencing students' food choices, including the preference for gari and beans, is important for universities to develop effective policies and interventions that promote healthy eating habits and support student well-being (Owusu-Ansah et al., 2022). By studying gari and beans consumer decision-making in this context, universities like University of Education, Winneba where open market vendors operate, management could promulgate policies and regulations related to preparation, sales and nutritional requirements for gari and bean on the university's campuses, thereby improving students' healthy eating habits and experiences. Though gari and beans is a healthy balanced diet, which is very

affordable, sometimes, ingredients price fluctuate affecting purchase rate for low-income consumers (Aberman et al., 2022). Despite this, research on this Ghanaian cuisine, and particularly on consumer purchase decision and preferences, remains limited (Ahiabor et al., 2024).

While data on gari and beans consumption across socioeconomic groups is limited, research suggests that the dish is highly patronised by students in educational institutions across Ghana (Adusei, 2021). Evidence from the literature suggests that personality and self-concept influence students' purchase decisions (Escalas & Bettman, 2015; Park & John, 2010), while previous studies emphasized that attitude, subjective norms, pricing, packaging, location and perceived behavioural control influence consumer behaviour particularly in developing economies, but these variables have not received the needed attention in developing nations, Ghana inclusive, (Nogueira et al., 2023; Yang & Ahn, 2020). Enhancement of the production and distribution of Gari and beans is possible only if there is proper understanding of the determinants that affect consumer purchase decisions (Ngoualem Kégah & Ndjouenkeu, 2023). These variables are important for policymakers, food marketers and producers seeking to elevate the production, distribution and patronage of the dish on university campus.

This study adopted the Theory of Planned Behaviour by Ajzen (1991) to examine the purchase decision of university students at the University of Education, Winneba. This study sought to provide insight on how specific determinates including attitude, subjective norms, pricing, packaging, location, and perceived behavioural control influence purchase decisions on the part of consumers and strategic ways to improve upon consumer satisfaction and, improve sustainable consumer patterns in the University of Education, Winneba.

The study aimed to examine the determinants of consumer of gari and beans' purchase decision in the University of Education, Winneba.

Theoretical framework

The study adopted the Theory of Planned Behaviour (TPB) by Icek Ajzen in 1991 due to its usefulness and elasticity for examining adoption decision such behaviour and intention of actors in a social context (Aboelimged, 2010). The TPB was utilised to evaluate the determinants of consumer purchase decision of university students in the University of Education, Winneba, towards the purchase of gari and bean on the university campus (Minbale et al., 2025). The theory is useful in this study because it is a notable socio-cognitive theory for assessing the intention and behaviour in the agricultural field (Ataei et al., 2022).

The theory states that behaviour is the outcome of behavioural intention, which is impacted by attitudes towards the behaviour (ATT), subjective norms (SN), and perceived behavioural control (PBC) (Ajzen, 1991). The conception that the behaviour of a person is the result of a series of factors prefaced by the TPB (Conner, 2020), such factors include intention, signifying a person's willingness to engage in a particular behaviour (Ajzen, 1985). Meaning a strong intention towards a behaviour by someone may lead the person to carry out that behaviour (Fishbein et al., 2003). According to Ajzen (1991), intention is determined by three socio-psychological factors: attitudes (ATT), subjective norms (SN), and perceived behavioural control (PBC).

According to Argyriou and Melewar (2011), attitude is often understood as a person's overall evaluation of a product, service, brand, or company. The predictive power of a person's attitude on

intention towards a product in the market is increasingly mediated by use experience and trust in product quality (Chetioui et al., 2021). Attitude remains a fundamental predictor of intention, and its influence is increasingly nuanced by factors such as reviews, social engagement, and brand authenticity (Yousaf & Almenayes, 2025). Attitude toward a brand's social responsibility initiatives significantly influences purchase intentions, particularly among younger consumers who are more likely to reward companies that align with their value (Elving, 2013; Morh et al., 2001).

An individual's perceptions of whether important others desire the individual to engage in a target behaviour is referred to as subjective norm (SN) (Mohammed et al., 2017). Subjective norm is the perceived social pressure derived from the individual's social network, reflecting the expectation that performing a specific behaviour will lead to social approval or disapproval (Arpaci, 2020). According to Rajkarnikar et al. (2025) the perceived authenticity and expertise of the referent group moderate the impact of subjective norms on purchase intentions. In this case, the perceived authenticity of colleague students judiciously impacts subjective norms on purchase decision towards the gari and beans (Muhammad Faiz Zidan et al., 2025). A person's intention to engage in an activity, according to TPB increases with the amount of pressure from, and expectations perceived by the society (Kim et al., 2020). Increased pressure and expectations from the society tends to eventually fuel students' intentions to purchase gari and beans (Emun & Fashakin, 2022). Some past studies showed that subjective norm pose as a significant determinant of consumer purchase intention (Jain, 2020; James et al., 2019).

Recent studies define perceived behavioural control (PBC) as a multi-dimensional construct that encompasses various aspect, such as quality, price, emotional value, and social value (Nassanbekova et al., 2024). According to Ajzen (1991), PBC is viewed as the perceived ease or difficulty of carrying out a behaviour. For instance, customers may perceive a product as valuable if it provides them with functional benefits, such as convenience of quality, as well as emotional benefits, such as pleasure or self-expression (Papista & Dimitriadis, 2019). Understanding and managing perceived behavioural control remains important for business to effectively influence consumer purchasing behaviour and achieve sustainable competitive advantage (Shih et al., 2024). This multi-dimensional construct has been subjected to several revisions, incorporating perceived behavioural control measures, controllability, and perceived difficulty, such as self-efficacy (Bin & Wahid, 2025). Studies have shown that PBC influence intention and behaviour (Hagger et al., 2022; Hassan et al., 2016).

With TPB trying to achieve perfection, it has its limitations just like other theories. In summary, the following are TPB's limitations: a fundamental assumption here is that individuals are provided with the opportunities and resources to achieve successful behavioural outcome, irrespective of the specific aims. This framework does not, however, incorporate variable that influence behavioural intention and motivation, such as apprehension, risk assessment, affective states, or prior lived experiences (Esfandiar & Hadinejad, 2026; Sniehotta et al., 2014). TPB has been used to significantly predict intention and behaviour despite the limitations; the theory leaves some important proportion of variance of intention and behaviour unexplained due to conceptual and methodological factors (Ajzen, 2011). There are some critics that address the fact that the theory is only based on three variables (Conner, 2020). By incorporating other variables, some researchers have managed increase the effectiveness and overcome the limitations of the TPB model (Liao et al., 2007; Steinmetz et al., 2016). In addressing perceived weakness of the TPB model, Ajzen, (1991) stated that incorporation of additional predictor variables into the TPB model is possible

provided these variables can help improve and explain significant proportion of the variance in intention and behaviour. More studies have improved predictability by incorporating additional variables into the original model (Bezbochina et al., 2023).

Among the three variables that have been additionally incorporated to the TPB model to improve predictability is pricing (Bhutto et al., 2022; N. Kumar & Mohan, 2021; Yanz & Ming, 2024). According to Bommadevara et al. (2026) pricing is the process of determining the value a company will receive in exchange for its products or services. Pricing is all the activities that goes into determining how much to charge for a company's products and services (Yanz & Ming, 2024). Price continues to play a significant role in shaping consumers purchase intention, but the way consumers perceive and respond to price signal is evolving (Bhutto et al., 2022). Pricing has been generally found to generally influence future behaviour when it comes to consumer purchase decision (Bommadevara et al., 2026). Thus, when TPB and consumer purchase decision is held constant, pricing can independently influence intention (N. Kumar & Mohan, 2021). A fixed price range of a products and services may instil a habit of consumers purchasing a commodity regularly (Bommadevara et al., 2026). Transparent pricing policies and consistent price-quality ratios so garri and beans will strengthen the perception of fairness in student consumers. Pricing in many studies has shown its capability of predicting consumer purchase decision when incorporated in the TPB (Yanz & Ming, 2024).

Also, location is noted to increase predictability of TPB (Meng & Choi, 2019; Zaremohzzabieh et al., 2022). Location has shown in much prior research as a predictor when it is incorporated into the TPB model (Meng & Choi, 2019). According to Akpan and Uford (2023) location refers to the geographic placement of business or retail outlet, impacting accessibility, visibility, and customer traffic. Location decisions involve the selection of sites for business operations with the goal of maximizing customer reach and minimizing operational costs (Kotler & Armstrong, 2020). Habit is formed when little effort or cognitive ability is needed to continuously execute behaviour because of the behaviour being ultimately repeated in the same location (Carden & Wood, 2018). Recent studies show that changing location within stores disrupt habitual buying behaviour (Tohidi et al., 2022). This clearly shows that in addition the three TPB variables (attitude, subjective norms and perceived behavioural control), location could predict consumers' intentions towards purchase decisions (Meng & Choi, 2019).

Another variable of interest is packaging which studies have suggested that when incorporated in the TPB model, it increases its predictability (Mu et al., 2026; Wijesinghe, 2025). According to Srivastava et al. (2022) all elements designed to contain, protect, and display a product, while also communicating information and brand identity is termed as packaging. Packaging goes beyond being a protective wrapper to serve as a key marketing tool that shapes consumer perceptions (N. Sharma & Dutta, 2024). Research shows that packaging has both cognitive and effective effect, that is, it conveys information about product quality and sustainability while also evoking emotional responses through visual design (Ogonowski & Bartłomiej, 2024). This shows that packaging alone can evoke people's emotions and affect intention in the TPB model (Wijesinghe, 2025). Several scholars have adopted the TPB to predict the behaviour of agricultural actors in various fields (Pourmand et al., 2020; Asante et al., 2024; Bhalla & Sharma, 2022). For example, Pourmand et al. (2020) conducted a research on an application of the theory of planned behaviour to self-care in patients with hypertension. The study found out that having perceived behavioural control over the other self-care behaviours had a positive effect on the intention in female patients. Subjective norms also, had a positive effect on behavioural intention in younger patients. The study

concluded that perceived control over self-care behaviours is more important in vulnerable patients, such as the elderly and women. Asante et al. (2024) also used the TPB to examine agricultural extension agents' behaviour towards adopting digital technologies in agricultural extension and found out that, intention and perceived behavioural control predicted 62% of the variation in behaviour while attitudes, subjective and norms accounted 58% in the intention of the extension agent to adopt digital technologies for agricultural extension. In addition, Bhalla and Sharma (2024) using 215 respondents, conducted a study on the impact of eco-packaging on consumers' green purchase behaviour using the TPB as its theoretical framework. They found out that attitude and perceived behavioural control significantly impacted purchase intention and purchase behaviour while subjective norms showing insignificant relationship to purchase. The study informed business on leveraging eco-packaging to promote sustainable consumption effectively.

Many studies have been done using the extended version of the TPB to predict the behaviour of actors in various fields (Abdullah et al., 2018; Dolch & Lasch, 2026; Meng & Choi, 2019). Abdullah et al. (2018) using the extended TPB, conducted a study on the behaviour towards brand equity and premium price. The findings indicated that there was a significant impact of brand equity, attitude, subjective norms, and perceived behavioural controls on consumer intention to pay a premium price for the brand. Moreover, Meng and Choi (2019) investigated on tourists' intentions to use location-based services (LBS) within a tourism sector by converging the theory of planned behaviour and the elaboration likelihood model together. The study revealed that the new model has a better predictive ability. Also, Dolch and Lasch (2026) used 792 respondents to research on German consumers' intention to adopt reusable transport packaging in e-commerce using an extended TPB. They found out that shopping frequently does not impact the relationship between attitude or perceived usefulness and intention, but it moderates the environmental concern-intention relationship, weakening its influence among frequent shoppers. The study concluded that packaging should emphasize the functional and environmental benefits of reusable transport packaging (RTP) to target both environmentally conscious and habitual online shoppers.

This study adopted the TPB to examine the factors influencing university students' purchase decision towards 'gari and beans' on the campus of the University of Education, Winneba. The study sought to examine the effect of attitudes towards the purchase of gari and beans, subjective norms, perceived behavioural control, price, location and packaging on students' purchase decision. In this study, intention is conceptualised as purchase decision, while perceived behavioural control is conceptualised as perceived behavioural control. Based on the information above, the study conceptualized six key constructs on undergraduate students' behavioural intention towards the purchase of gari and beans. In summary, the following hypotheses were formulated as follows:

H₁: attitude towards gari and beans positively influence the intention of undergraduate students to purchase gari and beans.

H₂: subjective norms affect undergraduate students' intention to purchase gari and beans.

H₃: perceived behavioural control affects undergraduate students' intention to purchase gari and beans.

H₄: pricing influence undergraduate students' intention to purchase gari and beans.

H₅: Location affects undergraduates students' intension to purchase gari and beans.

H₆: Packaging affects undergraduate students' intension to purchase gari and beans.

METHODOLOGY

Description of the Study Context

The study was conducted in the central part of Ghana, Winneba to be precise. The Central region makes up of 9,631 square kilometres (Statistics Research and Information Directorate-Ministry of Food and Agriculture (Asante et al., 2026). Based on the 2021 population and housing census, the total population of the inhabitants of Central Region according to is approximately 2,859,821 (Ghana Statistical Service, 2021). Winneba, locally called Simpa is in the Central Region of Ghana and it is situated between Accra and Cape Coast. Winneba is 56 kilometres west of the capital, Accra and about 140 kilometres east of Cape Coast (Eze et al., 2023). It is home to many important institutions which include the University of Education, Winneba, the Police Command and Staff Training School, College of Nursing and Midwifery and Winneba Senior High School. Winneba is also known for the outstanding festival, Aboakyer and its fishing activities (Maclean, 2020). According to Ghana Statistical Service (2021) the total population and housing census of Winneba, located in the Effutu Municipal District is 55,331. The study's focus was on university students in the University of Education, Winneba. According to the University of Education, Winneba (2025) the total students admitted to the university is over 16,000 of which approximately 13,591 undergraduates' students were enrolled at the Winneba campus for 2024/2025 academic year.

3.2 Research Approach and Research Design

This study used a quantitative approach, which according to Bayramova and Edwards (2025), quantitative research methods are based on the philosophy of positivism used to research certain populations or samples and collect data using research instruments. The study demanded numerical data collection that was analysed quantitatively. The study employed the cross-sectional survey design to sample consumers of Gari and beans in the University of Education, Winneba at the Winneba campus, located in central region of Ghana. The approach was utilised to gather primary data and plan for future research on consumers decisions towards the purchase of Gari and beans in the study area (Zangirolami-Raimundo et al., 2018). Cross-sectional survey design was used to enable Gari and beans consumers self-report their experiences and perspectives regarding the factors that leads them to purchase Gari and beans (Yan et al., 2022). The design incorporated a snapshot of pertinent data regarding how attitude, subjective norm, perceived behavioural control, location, packaging and pricing influence consumer purchase decision at a one point in time (Wijesinghe, 2025). The objective was to ascertain the degree at which consumers make purchase and what influence them in the study area (Arora et al., 2022).

3.3 Population of the Study

The study's population comprises of all undergraduate university student in the University of Education, Winneba at the Winneba campus.

3.4 Sampling Procedure and Sample Size

Cochran's (1977) formula for calculating sample size of a population was adopted to establish the study's sample size. The formula is as expressed below:

$$Z^2 \times PQ / e^2 = \frac{(1.96)^2 \times (0.5 \times 0.5)}{(0.05)^2} = 385 \approx 400$$

The rounded expected sample size of the study was 400 undergraduate students. Therefore, the intended sample size for the study was 400 undergraduate students. Due to time constraints, taking data from 400 respondents was going to be a challenge due to the end of semester examinations. Convenience sampling was used to this study. Enumerators visited the popular Gari and beans joints on the university's three campuses in Winneba. These popular eating places provided the opportunity to have access to the target population of students who purchase from these places.

3.5 Data collection Instrument

A two-sectioned structured questionnaire was used as the instrument for data collection. The first section drawn-out information on the socio-demographic characteristics and consumer-related variables including age, sex, monthly income level, and the Gari and beans combination consumers take eat on campus.

The second section gathered data on the extended TPB constructs [attitudes (4 items), subjective norm (5 items), pricing (4 items), packaging (3 items) location (6 items), perceived behavioural control (4 items)], and purchase decision (5 items). The TPB constructs were adopted from Fishbein and Ajzen (2010). Five-point Likert type scale of 1 = very low agreement; 2 = low agreement; 3 = moderate agreement; 4 = high agreement and 5 = very high agreement, was the scale adopted to measure the extended TPB construct.

3.6 Validity and Reliability of the Instrument

According to Perera et al. (2022), measurement validity applies primarily to quantitative research and to the search for measure of social scientific concepts. The instrument was reviewed by two specialists in agricultural extension to ensure face and content validity of the instrument. While one of the experts evaluated the clarity, structure, and logical flow of the questions, suitability for assessing consumer purchase decision towards Gari and beans in terms of attitude, subjective norms, perceived behavioural control, location, pricing and packaging, the other, confirmed the instrument's comprehensiveness and relevance to the research objectives. This process aligns with the best practices recommended by (DeVellis, 2017). Research instruments should be put to field-testing with a similar population of subjects of the study (Bryant, 2025). The study's instrument was pretested on ten (10) consumers following Boateng et al's. (2018), minimum feedback from pre-testing, to fine tune the questionnaire before actual data collection.

Table 1 illustrates that Cronbach's Alpha coefficients of the subscale were greater than the recommended level of 0.70, hence considered reliable (Bujang et al. 2018)

Table 1: Cronbach's Alpha Coefficient of subscales

Subscales	Number of items	Cronbach's Alpha Coefficient
Attitude	4	0.90
Subjective norm	5	0.87

Pricing	4	0.89
Packaging	3	0.87
Location	6	0.82
Perceived behavioural control	4	0.89
Students Purchase decision	5	0.91

3.7 Ethical Consideration

The study adhered to strict ethical standards. Participants were fully briefed on the objectives, informed that participation was voluntary, and assured of confidentiality. Oral consent was obtained, and ethical clearance was granted by the Institutional Review Board of the University of Education, Winneba, in line with the 1964 Declaration of Helsinki (Approval No. SGs-049/EC/Vol.3/16).

3.8 Data Collection Procedure

Four trained enumerators administered a total of 400 questionnaires for data collection and 152 were returned, yielding a 38% retrieval rate. The relatively low response rate was attributed to the timing of data collection during the examination period, which limited student participation.

3.9 Data analysis

For data cleaning, coding and preparation for analysis, International Business Machine's Statistical Package for Social Sciences (IBM SPSS) version 27 was utilised. The study used descriptive statistics such as frequencies, percentages, means and standard deviation to analyse data of students' socio-demographic characteristics, and determinants that influence students' purchase decisions. Means, standard deviations, ordinary least squares regression, and related indices were computed to examine the extended TPB constructs. Calculating for regression, students purchase decision was the dependent variable while attitude, packaging, location, pricing, subjective norms and perceived behavioural control were the independent variables. The regression was expressed in an equation of a straight line as follows: $Y = \beta X + C$

Where Y is the dependent or outcome variable, X is the independent variable β is the coefficient

C is the slope

For this study there were six independent variables, the equation was expressed as

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + C$$

Where Y = Students purchase decision

X_1 = Attitude

X_2 = Packaging

X_3 = Location

X_4 = Pricing

X_5 = Subjective norms

X₆ = Perceived behavioural control

Results

Demographic characteristics of university students

Table 2 illustrates the demographic characteristics of respondents. Close to seven in ten (65.8%) of the students that purchase Gari and beans on campus were males while the rest (34.2%) were females with a mean age of 24.54±4.83 years. Close to half (48.7%) were between 21 to 25 years old. Also, one-third (33.5%) of the respondents were 26 years or older. The results show that nine in every ten (92.80%) students were single with close to a tenth (6.60%) indicating to be married. It was revealed that more than half of the respondents earn less than GH¢ 500.00. close to nine in every ten students indicated that they purchase the commodity 1-5 times a week, with most (70.4%) of them going for different combinations of the dish, particularly Gari and beans with rice (40.8%) and Gari and beans with eggs (29.6%) with palm oil as the most preferred cooking oil (78.9%). The results showed that more than half (64.6%) of the students who participated in the study were at the South Campus of the University of Education, Winneba.

Table 2: Demographic characteristics of university students

Variables	Frequency	Percentage
Sex of students		
Male	100	65.8
Female	52	34.2
Age group (years)		
Less than 20	27	17.8
21-25	74	48.7
26-30	33	21.7
31 and above	18	11.8
Marital status		
Married	10	6.6
Single	141	92.8
Divorced	1	0.7
Monthly income		
Less than GH 301	59	38.8
GH 301 – 400	14	9.2
GH 401 – 500	15	9.9
GH 501 – 600	16	10.5
GH 601 and above	48	31.6
Average weekly purchase		
1-5	134	88.2
6-10	14	9.2
10 and above	2	1.3
Preferred combinations		
Gari and beans with rice	62	40.8
Gari and beans with eggs	45	29.6
Gari and beans with fish	20	13.2
Gari and beans with vegetables	13	8.6

Beans with kenkey	9	5.9
Gari and beans with meat	3	2.0
Preferred cooking oil		
Palm oil	120	78.9
vegetable oil	32	21.1
Campus of residence		
North Campus	54	35.5
Central Campus	15	9.9
South Campus	83	54.6
Total	152	100.0

Factors influencing university students' purchase decision of Gari and bean

From Table 3, the purchasing decision of students was rated with the highest overall mean of 3.51 ± 1.03 . The students agreed that they were highly satisfied with the purchase of the dish because they felt good about the decision and positively recommended the dish to other students. The second most important construct was packing of the dish by the vendors. The students moderately agreed that the packaging of the gari and bean sold on the university campuses was important (Overall mean = 3.40 ± 1.05), affirming that innovation in product packaging and the quality of the packaging material as well as the design are important because they impact on their purchase decisions. Pricing was the third ranked variable in among the constructs with moderately high overall mean of 3.38 ± 1.09 . Even though students indicated they are moderately willing to make an extra effort to find lower prices and compare prices of different food vendors, they agreed that they like to be sure that they are getting their money's worth. Additionally, the students moderately agreed that the time it takes to find lower prices is usually worth the effort. The fourth construct was location with an overall mean of 3.36 ± 0.85 . Despite the fact that students moderately agreed that vendors are in close proximity to their hostels and halls of residence, they however agreed that clean eating environment, shaded seating and vendors located near popular food joints impact their purchase decision. Attitude ranked fifth among the variable constructs having an overall mean of 3.36 ± 1.03 . Students agreed that they considered gari and beans as fulfilling than other staple foods sold on the university campus. On the other hand, they moderately agreed that gari and beans have better quality nutrition, healthier and tastier than other staple foods sold on the university campus. With an overall mean of 3.31 ± 1.04 , perceived behavioural control, was rated seventh construct. Although the students moderately agreed that they will choose gari and beans when purchasing staple foods, they also believed that they prefer to purchase gari and beans because they get good value for the money used. In Addition, students moderately agreed that although their friends purchase decision influences them to purchase the dish, they felt consuming gari and beans is better than other staple foods. Subjective norm was rated least among the variables with a composite mean of 3.26 ± 0.92 . Even though the students agreed that their colleagues considered the purchasing and consumption of gari and beans as a good thing, they also agreed that their close friends consider gari and beans a healthy meal. However, the students moderately agreed that members of their families deemed the consumption and purchase of gari and beans important.

Table 3: Factors influencing university students' purchase decision of Gari and bean

variables	Mean	Std. Deviation
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Purchase decision (PD)		
I am satisfied with my purchase of Gari and beans	3.86	1.21
I feel good about my decision to purchase Gari and beans	3.61	1.18
I will positively recommend Gari and beans to other students	3.55	1.18
I intend to purchase Gari and beans again	3.49	1.20
I frequently purchase Gari and beans	3.07	1.27
Composite mean	3.51	1.03
Packaging (PK)		
Innovation in product packaging is important for me during purchase	3.43	1.16
The quality of the packaging material is important for me	3.40	1.22
The package design has an impact on me during my purchase of Gari and beans	3.36	1.15
Composite mean	3.40	1.05
Pricing (PR)		
When I buy Gari and beans, I like to be sure that I am getting my money's worth	3.55	1.16
I am willing to make extra effort to find lower prices	3.40	1.29
When buying Gari and beans, I compare the prices of different staple foods to be sure I get the best value for the money	3.39	1.30
The time it takes to find low prices is usually worth the effort	3.19	1.28
Composite mean	3.38	1.09
Location of vendors (LV)		
Clean eating environment affects my purchase	3.93	1.21
The location offers shaded seating	3.62	1.13
Stalls are located near other popular food joints	3.45	1.12
The vendors are in close proximity to my hostel	3.16	1.25
The vendors are near my lecture halls	3.00	1.22
The Vender is in a high-traffic area on campus	2.93	1.19
Composite mean	3.36	0.85
Attitude (ATT)		
I consider Gari and beans as fulfilling than other staple foods sold on campus	3.49	1.23
I consider Gari and beans to have better quality nutrition than other staple foods sold on campus	3.43	1.15
I consider Gari and beans healthier than other staple foods sold on campus	3.34	1.20
I consider Gari and beans tastier than other staple foods sold on campus	3.17	1.15
Composite mean	3.36	1.03
Perceived behavioural control (PBC)		
I prefer to purchase Gari and beans because I believe I get good value money with what I give	3.41	1.15
I will choose Gari and beans when purchasing staple foods	3.28	1.19
I feel that a friend's purchase will influence me to purchase it as well	3.27	1.28

Consuming Gari and beans is better than other staple foods	3.26	1.16
Composite mean	3.31	1.04
Subjective norm (SN)		
My colleagues consider the consumption of Gari and beans a good thing	3.63	1.15
My colleagues consider the purchase of Gari and beans a good thing	3.55	1.07
My close friends consider Gari and beans a healthy meal	3.51	1.10
Members of my family consider consumption of Gari and beans as important	2.80	1.23
Members of my family consider purchase of Gari and beans as important	2.79	1.15
Composite mean	3.26	0.92

Relationships between university students purchase decisions and related variables

Table 4 presents the correlation metrics of university students' purchase decision and related variables. Davis (1971) convention for describing the magnitude of correlation coefficients was used to interpret the results. According to the Davis convention, there was a very high positive ($r = 0.76$, $p = 0.00$) and significant relationship between students' purchase decision and their attitudes towards gari and beans on the university campus at 0.05 alpha level. The results indicate that as students' attitude towards the eating of gari and beans increases, it leads to a significant positive increase in students' purchase decision. On the other hand, there was a substantial positive correlation between students' purchase decision and the location of vendors ($r = 0.64$, $p = 0.00$), pricing ($r = 0.63$, $p = 0.00$), packaging ($r = 0.61$, $p = 0.00$), and subjective norm ($r = 0.59$, $p = 0.00$) at 0.05 alpha level. The results imply that an improvement in the location of the food vendors, pricing, packaging of the dish and influence of colleagues and friends would produce positive increase in the purchase decision of the students. It is worth noting that the results showed a low positive relationship between students' purchase decision and perceived behavioural control however, the relationship was not significant.

Table 4: Correlation metrics of students purchase decisions emulated variables

Constructs	PD	ATT	SN	PR	PK	LV	PV
PD	1						
ATT	0.76**	1					
SN	0.59**	0.64**	1				
PR	0.63**	0.63**	0.67**	1			
PK	0.61**	0.48**	0.49**	0.54**	1		
LV	0.64**	0.60**	0.53**	0.52**	0.61**	1	
PV	0.15	0.15	0.08	0.22**	0.09	0.09	1

** $p = 0.00$,

Determinants of undergraduate students' purchase decisions towards Gari and beans

Ordinary least squares multiple linear regression was employed to examine the determinants of the university students' purchase decision of gari and beans on the university campus (Table 5). The results showed that attitude, packaging, location, and pricing were the best predictors of students'

purchase decision account for 68% of the variance in the purchase decision of the students ($R^2 = 0.68$, $p < 0.05$). When the individual variables were examined separately, the findings reveal that attitude was the strongest predictor of the university students' purchase decision of gari and bean [$F(1,150) = 206.73$, $p < 0.001$, with $R^2 = 0.58$] in the university campuses. The 95% confidence interval for the regression coefficient of attitude did not include zero (lower bound = 0.50, upper bound = 2.00), confirming a significant and reliable effect. The results of the beta coefficient of 0.49, indicates that a unit increase in the attitude of the students (overall mean = 3.36 ± 1.03), would result in a 49% increase in students' purchase decision when all other variables are held constant. When packaging was examined to the model, the explanatory power increased to 66% [$F(1,149) = 33.87$, $p < 0.001$] accounting for 8% of the variance in purchase decision ($R^2 = 0.08$, $p < 0.05$). The confidence interval ranged between 0.56 and 1.80, further supporting its significance. The effect of packaging is seen in the beta coefficient of 0.22 which suggests that a unit increase in the mean packaging (overall mean = 3.40 ± 1.09), would initiate a 22% increase in purchase decision of the student when all other variables are held constant. The location of the vendors in terms of clean eating and shaded seating environment, and proximity to other popular food joints, and student hostels and halls of residences improved the explanatory power to 67% [$F(1,148) = 5.19$, $P < 0.001$] accounting for 1% of the variance in purchase decision ($R^2 = 0.01$, $p < 0.05$). The confidence interval ranged between 0.50 and 2.02, further supporting significance of the model. The effect of location is seen in the beta coefficient of 0.14 which indicate that a unit increase in the mean perceived vendors' location including clean eating and shaded seating environment, and proximity to other popular food joints, and student hostels and halls of residences (overall mean = 3.36 ± 0.85), would signify a 14% increase in purchase decision of the student when all other variables are held constant. When pricing was examined to the model, the explanatory power increased to 68% [$F(1,147) = 4.42$, $p < 0.001$] accounting for 1% of the variance in purchase decision ($R^2 = 0.01$, $p < 0.05$). The confidence interval ranged between 0.53 and 1.90, making the model more significant. The effect of pricing is seen in the beta coefficient of 0.14 which suggest that a unit increase in the mean pricing (overall mean = 3.38 ± 1.09), would indicate a 14% increase in purchase decision of the student when all other variables are held constant.

Table 5: Ordinary least squares multiple linear regression

Mode	R	R Square	Adjusted R Square	S. E. E	R Square Change	Stand. Beta	F Change	df 1	df2	Sig.	95% CI	
											LB	UB
ATT	0.76	0.58	0.58	0.67	0.58	0.49	206.73	1	150	<0.00	0.50	2.00
PK	0.81	0.66	0.65	0.61	0.08	0.22	33.87	1	149	<0.00	0.56	1.80
LV	0.82	0.67	0.66	0.60	0.01	0.14	5.19	1	148	0.02	0.50	2.02
PR	0.82	0.68	0.67	0.60	0.01	0.14	4.42	1	147	0.04	0.53	1.90

Discussion

The study sought to examine the purchase decision of a local dish 'gari and beans' among university students using the Ajzen (1991) Theory of Planned Behaviour as the anchor theory. The sample for the study was drawn from students from the University of Education, Winneba, one of public universities in Ghana. Gari and beans is a very important dish for students in the university, due to its affordability and easy accessibility to the students. The results indicate that the respondents were satisfied with their purchase of gari and beans (overall mean 3.51 ± 1.03). The students felt good about their decision to purchase Gari and beans and respondents were willing to

positively recommend Gari and beans to other people. Also, they agreed that they frequently purchase Gari and beans. The strongest agreement was with after purchase satisfaction indicating that consumers generally feel content with their choice. This aligns with consumer behaviour research which emphasizes that satisfaction is a central determinant of purchase decision (Purba et al., 2025).

Attitude influenced students' Gari and beans purchase decision. Generally, the students moderately agreed that they possess positive attitudes towards the purchase of Gari and beans in the study area (overall mean 3.36 ± 1.03). The results are in line with that of Utami et al. (2025), which concluded that students (generation Z) showed positive attitude towards investing in a capital market at Widyatama University. Also aligned with this study is that of Ntobela and Mbukanma (2024) which investigated the effect of consumer attitudes on impulse buying behaviour among millennials in South Africa and found that marketing stimuli such as promotions and attractive store layouts enhance positive attitudes, which in turn increase impulsive buying. Results showed that attitude emerged as the strongest predictor of purchase decision accounting for 58% of the variation in gari and beans purchase decision among the students. This finding is in line with previous studies where attitude significantly influenced consumer buying behaviour, particularly food products (Ajzen, 2020; S. Kumar et al., 2025).

The findings on subjective norms revealed that students moderately agreed that their significant associates support their purchase decisions regarding gari and beans (overall mean = 3.26 ± 0.92). Family members were perceived to consider the purchase of gari and beans as important, while colleagues expressed stronger agreement that consumption of the dish is positive. Despite these perceptions, subjective norms did not significantly influence students' purchase decisions. This outcome contrasts with Tarawneh et al. (2024), who reported a strong effect of subjective norms on online purchase intentions in Jordan's e-commerce sector, and Nogueira et al. (2023), who found significant impacts of subjective norms on sustainable mobility choices. The implication is that social associates of students do not exert substantial influence on their decisions to consume gari and beans on campus.

With respect to perceived behavioural control, respondents moderately agreed that they have control over their purchase behaviour (overall mean = 3.31 ± 1.04). However, regression analysis indicated that perceived behavioural control did not significantly affect purchase decisions. This contradicts findings by Sharma et al. (2025), who reported strong effects of perceived behavioural control on green food purchases in India, and Bhalla and Sharma (2024), who found significant influence on eco-friendly packaging choices. The present study's results align more closely with Asante et al. (2025), who observed non-significant effects of both subjective norms and perceived behavioural control in farmers' adoption of pest management practices in Ghana.

The analysis further highlighted packaging as the second most important variable influencing purchase decisions. Students moderately agreed that packaging affects their choices (overall mean = 3.40 ± 1.05). Although its effect was weaker than attitude, packaging contributed meaningfully to decision-making. This supports Esvandiari et al. (2023), who found eco-friendly packaging positively influences purchase intention, and Ratković et al. (2024), who emphasized the importance of balancing sustainability with functionality.

Finally, the location of vendors emerged as the third most significant construct. Students moderately agreed that location influences their purchase decisions (overall mean = 3.36 ± 0.85). This finding aligns with Akpan and Uford (2023), who demonstrated the importance of retail outlet

location for business performance, and Novrianda et al. (2024), who showed that convenient locations increase purchase likelihood among restaurant consumers. Accessibility and proximity were thus confirmed as critical factors shaping student consumption behaviour.

Again, pricing was a significant variable that influence the consumption of the dish by the vendors in the university. Students moderately agreed that the price of the product influence their purchase of Gari and beans in the study area (overall mean 3.38 ± 1.09). This aligns with Hride et al. (2022) study that investigated how consumers' perceptions of price fairness influence their loyalty toward retail brands, found that perceived price fairness significantly enhances consumer trust and satisfaction, which in turn increases repeat purchase behaviour. Xu et al. (2022) examined how different ways of presenting discounts (percentage-off vs. dollar-off) affect students purchase behaviour and discovered that discounts are more effective for high priced items, while discounts work better for lower-priced goods.

The study focused on determinants that influence consumer purchase decisions towards Gari and beans on Winneba campus in the University of Education, Winneba, hence results cannot be generalised cover beyond Central region. Future studies should be conducted in to other geographical locations and increasing the sample size will be helpful. The study's focus was on six variables (attitude, subjective norm, pricing, location, packaging and perceived value). Future research could expand and include other factors, such as labelling and promotion, among others, that could influence purchase decisions. This would provide marketing managers with a better understanding of factors that influence consumer purchase

Conclusions

The study revealed that multiple factors significantly shaped university students' purchase decisions toward Gari and beans consumption. Attitude emerged as the most influential determinant, with students showing moderate to high positive perceptions when it comes to the nutritional value, health benefits, and fulfilment of students get from consuming Gari and beans. The regression analysis confirmed that attitude was the strongest predictor of purchase decisions, followed by packaging, location, and pricing, which moderately had weaker but still significant effects. Overall, these factors had up to 68% of the variation in purchase decisions. In view of that we recommend that Gari and beans vendors should lay emphasis on the nutritional and health benefits of Gari and beans when promoting their food vending joints. Since attitude emerged as the strongest predictor of purchase decisions. This will create awareness of the vendors on campus about the affordability, and health advantages of the food sold which could further enhance students' positive perceptions about the dish. Since price sensitivity was evident in students' purchase behaviour, vendors should maintain fair pricing and introduce occasional discounts to make Gari and beans more attractive compared to competing staple foods on campus. Students should also patronise vendors which offer competitive pricing of the dish on the university campus in order to receive their money's worth when they purchase the food. Vendors should invest in hygienic, and visually appealing packaging that is convenient for immediate consumption. Incorporating sustainable packaging could also attract environmentally conscious students. Location played an important role in shaping consumers' purchase decisions towards Gari and beans, vendors should position their outlets in clean, accessible areas close to lecture halls, hostels, and other high-traffic student zones. Providing shaded seating and a neat eating environment will increase the patronize the dish by the students. Since peer and social influence moderately shaped students' decisions. Vendors could introduce referral promotions, loyalty schemes, or group

discounts that encourage students to eat together. Social media campaigns showcasing student testimonials could also help normalize and popularize Gari and beans consumption on campus.

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Author Contributions

Isaac Kwasi Asante, conceived, designed, developed questionnaire, conducted survey, analysed data and drafted and revised manuscript. *Yaw Sarfo*, conceived, designed, developed questionnaire, conducted survey, analysed data and drafted and revised manuscript. *Auswell Amfo-Antiri*, developed questionnaire, conducted survey and reviewed manuscript. *Mavis Akor Teye, Justice Mensah*: developed questionnaire, designed the study, analysed data, interpreted results, drafted and revised manuscript. All authors approved of the final version of the manuscript.

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Data Availability Statement

The data used for this study is available upon request to the corresponding author.

Declarations

Ethical approval and consent to participate

Ethical clearance was granted by the Institutional Review Board (IRB) of the University of Education, Winneba with approval ID [SGS-049/EC/Vol.3/16]. All research procedures were conducted in accordance with the ethical standards of the University of Education, Winneba Institutional Review Board (IRB) and adhered to the principles outlined in 1964 Declaration of Helsinki, ensuring compliance throughout the study.

Consent for publication

The authors affirm that human research participants provided informed consent for the publication of the data used in this study.

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Competing interest

The authors declare no potential competing interest.

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