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Asizem Abavireba Emmanuel
Department of Agricultural
Innovation Communication,
University for Development
Studies, Tamale, Ghana

Clement Yaw Lamptey
Department of Agricultural
Innovation Communication,
University for Development
Studies, Tamale, Ghana

Hudu Zakaria
Department of Agricultural
Innovation Communication,
University for Development
Studies, Tamale, Ghana

Corresponding Author:
Asizem Abavireba Emmanuel
Department of Agricultural
Innovation Communication,
University for Development
Studies, Tamale, Ghana

Attitude, subjective norms, and consumer acceptance of Maize-based beer (Eagle Stout) in the tamale metropolis, Ghana: A theory of planned behaviour approach

Asizem Abavireba Emmanuel, Clement Yaw Lamptey and Hudu Zakaria

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Abstract

This article examines the factors influencing consumer acceptance of Accra Brewery Limited's Eagle Stout maize-based beer in the Tamale Metropolis of Ghana, guided by the Theory of Planned Behaviour (TPB). Using a multi-stage sampling technique, structured questionnaires were administered to 400 respondents drawn from communities within the metropolis. Descriptive statistics revealed that 73.8% of respondents were aware of the product, while 69.2% expressed acceptance. Multiple linear regression analysis showed that attitude toward maize-based beer ($\beta = 0.31, p < 0.001$) and subjective norms ($\beta = 0.21, p = 0.003$) were significant predictors of consumer acceptance. Mean scores further indicated favourable attitudes ($M = 4.10, SD = 0.68$) and moderate subjective norms ($M = 3.85, SD = 0.79$). These findings suggest that consumers with positive attitudinal perceptions and strong social endorsement from peers and community members are significantly more likely to accept the product. The study recommends culturally tailored marketing strategies and community-based engagement campaigns to improve product acceptance and penetrate the competitive Ghanaian beer market.

Keywords: Consumer acceptance, maize-based beer, Eagle Stout, Theory of Planned Behaviour, attitude, subjective norms, Tamale, Ghana

1. Introduction

Maize (*Zea mays*) is central to agriculture, food security, and cultural identity across sub-Saharan Africa, particularly in Northern Ghana. Beyond its importance as a staple crop, maize has deep-rooted connections to traditional brewing practices, most notably the artisanal beverage *pito*, long consumed during social and ceremonial occasions in the region (Djameh *et al.*, 2015) ^[4]. Recognising this cultural and agricultural significance, Accra Brewery Limited (ABL) introduced Eagle Stout, a premium stout beer formulated partly from locally sourced maize as a substitute for imported barley. This initiative was aimed at reducing foreign exchange costs, supporting smallholder farmers, and tapping into the nutritional and sustainability credentials of locally grown maize.

Despite the strategic rationale behind Eagle Stout's formulation, its commercial success ultimately depends on consumer acceptance a complex phenomenon shaped by attitudes, social influences, perceived quality, and economic factors. Consumer acceptance of a new product is not an automatic outcome of its availability; it requires navigating existing preferences, cultural expectations, and information environments. In the Tamale Metropolis, where traditional beverages are deeply entrenched and barley-based commercial beers dominate brand perceptions, the pathway to acceptance for maize-based alternatives is particularly challenging (Nimoh *et al.*, 2024) ^[9].

The Theory of Planned Behaviour (TPB), originally developed by Ajzen (1991) ^[1], provides a well-validated theoretical lens through which consumer decision-making can be examined. TPB posits that behavioural intentions and consequently actual behaviours are shaped by three interrelated constructs: attitude (an individual's positive or negative evaluation of a behaviour), subjective norms (perceived social pressure to engage or not engage in a behaviour), and perceived behavioural control or PBC (the perceived ease or difficulty of

Performing a behaviour). For new products like maize-based beer, TPB is especially useful because it accounts not only for personal preferences but also for the powerful social dynamics that shape purchasing behaviour in collectivist societies such as those found in Northern Ghana (Hofstede, 2011)^[6].

Despite growing scholarly interest in consumer behaviour around locally produced beverages in Africa, empirical evidence on the specific factors driving consumer acceptance of commercial maize-based beer in Ghana remains limited. Earlier studies, such as those by Sarfo-Mensah (2017) and Djameh *et al.* (2015)^[4], focused on the cultural or technical dimensions of maize beverages without quantifying how TPB constructs operate as predictors of acceptance. This study addresses that gap by empirically analysing the role of attitude and subjective norms in determining consumer acceptance of Eagle Stout in Tamale.

2. Literature review

2.1 Consumer acceptance in the context of new food and beverage products

Consumer acceptance is broadly defined as the degree to which individuals are willing to purchase and consume a product, reflecting a positive evaluation of the product's attributes relative to expectations and alternatives (Kotler & Keller, 2016)^[8]. In markets dominated by established preferences as in the Ghanaian beer industry, where barley-based brands enjoy strong loyalty the introduction of a new product such as maize-based beer must overcome entrenched cognitive biases and habitual behaviours. Studies across Africa have consistently shown that acceptance of innovative food products is not determined by familiarity alone; it requires a combination of positive sensory experiences, health perceptions, and socio-cultural alignment (De Groote *et al.*, 2010; Nuss & Tanumihardjo, 2011)^[3, 10].

In the Ghanaian context, Spiller and Belogolova (2017)^[12] underscore that acceptance is primarily driven by perceived product attributes, including flavour, quality, and health value. Osei and Baffour-Awuah (2020)^[11] noted that while Ghanaian consumers were generally aware of maize's health properties, awareness of its application in commercial brewing was limited, creating a knowledge gap that could suppress acceptance. This is consistent with Verbeke's (2008)^[13] argument that awareness alone is insufficient without corresponding positive sensory and attitudinal endorsement.

2.2 Attitude as a predictor of consumer acceptance

Within the TPB framework, attitude refers to an individual's positive or negative evaluation of performing a specific behavior in this case, consuming maize-based beer. Ajzen (1991)^[1] established that attitudes are formed through the consumer's beliefs about the likely consequences of the behaviour and the value attached to those consequences. For maize-based beer, positive attitudinal beliefs may include perceptions of health benefits (e.g., gluten-free composition, high fibre content), cultural alignment with locally sourced ingredients, affordability, and taste satisfaction.

Zhang *et al.* (2021)^[15] demonstrated that positive nutritional framing significantly increases consumer attitudes towards alternative grain products. In the West African context, where cultural identity and social symbolism are intertwined with food and beverage choices, attitude formation is further

shaped by how well a product aligns with or reinforces community values. Consumers who perceive maize beer as consistent with local agricultural heritage and supportive of smallholder farmers are likely to develop more favourable attitudes that then translate into stronger acceptance intentions.

2.3 Subjective norms and social approval in beverage acceptance

Subjective norms, the second core TPB construct, represent the perceived social pressure an individual faces to adopt or avoid a behaviour. In collectivist societies like Northern Ghana, peer influence, family endorsement, and community leader approval carry substantial weight in determining purchasing behaviour (Hofstede, 2011)^[6]. White *et al.* (2019)^[14] and Kaur *et al.* (2020)^[7] found that peer endorsement significantly elevates willingness to try innovative and sustainable products. Conversely, social stigma or disapproval can inhibit adoption even when individual attitudes are favourable (Goffman, 1963).

The role of subjective norms is particularly salient in the context of alcoholic beverages. In Tamale, where communal drinking is linked to shared cultural events and traditional practices, the normative environment can either legitimise or delegitimise the consumption of new products. For Eagle Stout, endorsement by community leaders, respected peers, or family members could generate the normative push necessary to convert awareness into acceptance.

3. Methodology

3.1 Study design and sampling

This study adopted a cross-sectional survey design, drawing on a mixed-methods approach that combined structured questionnaires with focus group discussions. The study area was the Tamale Metropolis, which serves as the capital of the Northern Region of Ghana and constitutes a strategically important market for locally produced beverages given the cultural prominence of maize in the region.

The sample size was determined using the Yamane (1967) sample size formula, appropriate for finite populations. Based on the estimated population of the metropolis and a precision level of 5%, a total sample size of 400 respondents was obtained. A multi-stage sampling technique was then applied: at the first stage, communities within the metropolis were identified and stratified; at the second stage, households were selected using Probability Proportional to Size (PPS); and at the third stage, individual respondents were selected purposively within selected households to include adults (18 years and above) who had either consumed, purchased, or been exposed to alcoholic beverages.

3.2 Measurement of variables

Consumer acceptance was measured as the dependent variable using a binary response scale (accepted vs. not accepted), which was supplemented by Likert-scale items capturing the degree of positive evaluation. The key independent variables attitude toward maize-based beer (ATT) and Subjective Norms (SN) were operationalised using multi-item 5-point Likert scales anchored from 1 (strongly disagree) to 5 (strongly agree), adapted from validated TPB instruments in the food and beverage consumption literature (Ajzen, 1991; Armitage & Conner, 2001)^[1, 2]. Perceived Behavioural Control (PBC) was also

measured and included as a control variable in the regression model to isolate the effects of attitude and subjective norms.

3.3 Data analysis

Data were analysed using IBM SPSS Statistics (Version 26). Descriptive statistics including frequencies, percentages, Means (M), and Standard Deviations (SD) were computed to characterise the distribution of awareness and acceptance levels, as well as the central tendency of TPB construct scores. Multiple linear regression analysis was employed to identify significant predictors of consumer acceptance, with attitude, subjective norms, and PBC as the predictor variables. The significance threshold was set at $p < 0.05$.

4. Results and Discussion

4.1 Awareness and acceptance levels

The descriptive analysis revealed that a substantial majority of respondents (73.8%) demonstrated awareness of Eagle Stout maize-based beer, recognising it as a locally produced commercial beer from Accra Brewery Limited. However, the proportion expressing acceptance was somewhat lower at 69.2%, indicating an awareness-acceptance gap of approximately 4.6 percentage points. This pattern where awareness outpaces acceptance is consistent with theoretical expectations in new product marketing: awareness is a necessary but not sufficient condition for acceptance (Verbeke, 2008; Grunert *et al.*, 2010) [5, 13].

The gap suggests that a meaningful segment of aware consumers have reservations about the product, possibly related to sensory expectations, price-quality perceptions, or social normative pressures. This finding underscores the importance of moving beyond awareness-creation campaigns toward deeper engagement strategies that address specific barriers to acceptance.

Table 1: Consumer awareness and acceptance of eagle stout maize-based beer (n = 400)

Variable	Frequency (n)	Percentage (%)	Category
Awareness of Eagle Stout	295	73.8	Aware
	105	26.2	Not Aware
Acceptance of Eagle Stout	277	69.2	Accepted
	123	30.8	Not Accepted

Source: Field survey, 2026

4.2 Descriptive statistics for TPB constructs

Table 2 presents the mean scores and standard deviations for each TPB construct. Attitude toward maize-based beer recorded the highest mean score ($M = 4.10$, $SD = 0.68$), indicating that respondents, on average, held favourable views about Eagle Stout. This finding suggests that consumers in Tamale generally perceived the product positively appreciating its local sourcing, its association with familiar maize-based traditional beverages, and its potential health positioning.

Subjective norms recorded a moderately positive mean score ($M = 3.85$, $SD = 0.79$), reflecting moderate but meaningful levels of social approval within respondents' reference groups. While this is positive, the relatively higher variability ($SD = 0.79$ compared to $SD = 0.68$ for attitude) suggests heterogeneity in social normative environments across communities within the metropolis. Perceived Behavioural Control ($M = 3.65$, $SD = 0.82$) and Behavioural Intention ($M = 3.97$, $SD = 0.75$) also registered above the scale midpoint, though actual consumption behaviour showed a notably lower mean ($M = 2.85$, $SD = 1.35$), foreshadowing the intention-behaviour gap discussed in the broader study.

Table 2: Descriptive statistics for TPB constructs (n = 400)

TPB Construct	Mean (M)	Std. Dev. (SD)	Interpretation
Attitude toward Maize-Based Beer	4.10	0.68	Favourable
Subjective Norms	3.85	0.79	Moderate-Positive
Perceived Behavioural Control	3.65	0.82	Moderate
Behavioural Intention	3.97	0.75	Strong
Actual Consumption Behaviour	2.85	1.35	Below Average

Source: Field survey, 2026. Scale: 1 = Strongly disagree to 5 = Strongly agree

4.3 Regression analysis: Predictors of consumer acceptance

To determine which TPB constructs significantly predict consumer acceptance of Eagle Stout, a multiple linear regression model was estimated with Attitude (ATT), Subjective Norms (SN), and Perceived Behavioural Control (PBC) as independent variables. The results are presented in Table 3.

The regression results confirmed that two constructs were statistically significant predictors of consumer acceptance. Attitude toward maize-based beer emerged as the strongest predictor ($\beta = 0.31$, $p < 0.001$), indicating that a one-unit increase in favourable attitude toward the product is associated with a 0.31-unit increase in consumer acceptance, holding other variables constant. This finding is consistent with the broader TPB literature, which consistently identifies attitude as a primary determinant of behavioural intention and, by extension, of acceptance (Ajzen, 1991; Armitage & Conner, 2001) [1, 2].

Subjective norms also registered as a significant predictor ($\beta = 0.21$, $p = 0.003$), confirming the important role of social influence in driving acceptance in the collectivist context of Tamale. This corroborates Hofstede's (2011) [6] framework and the findings of White *et al.* (2019) [14], suggesting that social endorsement of Eagle Stout by peers, family members, and community leaders is a meaningful driver of acceptance beyond individual attitudes.

Perceived Behavioural Control (PBC), while positive in direction ($\beta = 0.15$), did not reach statistical significance in predicting acceptance ($p > 0.05$) in this model. This suggests that, at the stage of acceptance as opposed to actual purchasing the perceived ease of acquisition may play a lesser role than attitudinal and normative factors. This is an important nuance: acceptance is primarily a cognitive and social phenomenon, while actual purchase behaviour is also constrained by structural barriers such as price and availability. The overall model was statistically significant ($F = 42.31$, $p < 0.001$) and explained approximately 35.2% of the variance in consumer acceptance (Adjusted $R^2 = 0.344$).

Table 3: Multiple linear regression: predictors of consumer acceptance of eagle stout

Predictor Variable	β (Beta)	Std. Error	t-value	p-value
Attitude toward MBB (ATT)	0.31	0.065	4.77	< 0.001***
Subjective Norms (SN)	0.21	0.071	2.96	0.003**
Perceived Behavioural Control (PBC)	0.15	0.078	1.92	0.056 ns
Adjusted R ²	0.344			-
F-statistic (Model)	42.31			< 0.001***

Source: Field survey, 2026. Note: *** $p < 0.001$; ** $p < 0.01$; ns = not significant. MBB = Maize-Based Beer

4.4 Discussion

The dominance of attitude as a predictor of consumer acceptance is consistent with the TPB's theoretical hierarchy and with a wide range of empirical studies in food and beverage markets. In the context of Tamale, favourable attitudes toward Eagle Stout appear to be anchored in the cultural familiarity of maize as a food and brewing ingredient. The high attitude mean score ($M = 4.10$) likely reflects consumer appreciation for the product's local roots, its positioning relative to traditional beverages like pito, and potentially its perceived nutritional advantages as a gluten-free product.

The significant influence of subjective norms on acceptance aligns with foundational work by Hofstede (2011) [6] and Ajzen (1991) [1], which predicts that in high collectivism societies, social referents play a disproportionately powerful role in shaping individual choices. Northern Ghana, characterized by strong communal bonds and hierarchical social structures, represents precisely the kind of context in which normative beliefs carry behavioural weight. The endorsement of maize-based beer by family elders, peer groups, or community opinion leaders—whether through word-of-mouth or social media could be leveraged as a strategic marketing tool.

Notably, the awareness-acceptance gap (73.8% vs. 69.2%) and the moderate variability in subjective norms scores ($SD = 0.79$) indicate that acceptance is not yet universal and that residual barriers remain. Some consumers may be aware of Eagle Stout but hesitant to signal acceptance due to normative pressures in environments where barley-based commercial beers are associated with modernity and social prestige (Nuss & Tanumihardjo, 2011) [10]. ABL's communication strategy should therefore focus not only on product attributes but also on repositioning maize-based beer as a socially respected and culturally resonant choice.

5. Conclusion and Recommendations

This study provides empirical evidence that consumer acceptance of Eagle Stout maize-based beer in the Tamale Metropolis is primarily driven by attitude toward the product ($\beta = 0.31$, $p < 0.001$) and subjective norms ($\beta = 0.21$, $p = 0.003$), consistent with the Theory of Planned Behaviour. With awareness at 73.8% and acceptance at 69.2%, the product has achieved meaningful market penetration, though scope for growth remains significant.

These findings yield several actionable recommendations. First, Accra Brewery Limited should invest in attitudinal marketing communicating the sensory, nutritional, and cultural value of Eagle Stout through targeted campaigns that link the product to local agricultural heritage and community pride. Second, community-based engagement strategies, including collaboration with traditional chiefs, religious leaders, and popular local influencers, should be pursued to strengthen subjective norms and normalise Eagle Stout consumption. Third, school and community outreach programmes highlighting the gluten-free and high-fibre properties of maize can help create positive health

associations that reinforce favourable attitudes, particularly among younger and health-conscious consumers.

Future research should incorporate longitudinal designs to track changes in acceptance over time, include sensory evaluation components to disentangle the role of taste preferences, and extend the geographic scope to other Ghanaian cities to assess generalisability.

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