

INFLUENCE OF ARTIFICIAL INTELLIGENCE TOOLS ON SAFETY-ORIENTED CONSUMERISM AMONG UNIVERSITY UNDERGRADUATES IN OSUN STATE, NIGERIA

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Abstract

The health of a student is a major determinant of academic achievement, without optimal health, the journey of academics might be uneasy and unachievable. This population's health can be greatly influenced by Consumerism which is primarily concerned with what they consume, when they consume it, how they consume it and the effect of that consumption on their health. Consumerism affects lifestyle choices which in turn affect health status; the 19th century consumerism was more concerned with the social status of individuals with little or no recognition for the importance of health, however the 21st century consumerism prioritizes health while trying to equally embrace the social value of the product. Safety oriented consumerism is therefore a necessary skill in every modern society especially because the emergence of Artificial Intelligence (AI) tools

have a great influence on almost every product and act. This paper investigated students' level of awareness on the use of AI applications for nutritional guidance and the influence of this awareness on safety-oriented consumerism, among university undergraduates in Osun State, Nigeria. A Cross-sectional survey design was used and a total of 316 respondents were selected. Result showed that 44.62% of them are very aware of the use of AI for nutritional guidance but only 19% of them practice safety-oriented consumerism as a result of this awareness. The study therefore recommends the integration of digital health literacy in the school curriculum by NUC and the endorsement of AI-powered apps that allow the verification of products for authenticity by NAFDAC.

Keywords: Health, Artificial Intelligence (AI), Safety-Oriented Consumerism, Counterfeit Product.

Introduction

The tertiary institutions in Nigeria are mostly made up of students between ages 16 and 20 years (Ibrahim et al., 2025), which is the age characterized by a strong desire for social-belonging, often measured by their social status. The social status of an individual is often determined by their consumption of goods and services, usually beyond basic survival needs. Consumerism is a social movement designed to augment the rights and powers of buyers in relation to sellers (Kotler, 2000). Consumerism is seen as a negative influence that deceives individuals to define their worth by the amount of or quality of the goods and services they consume, regardless of whether it will be of nutritional benefits or not (Appel et al., 2020). Consumerism is constantly used as a tool for classism where people are treated based on their ability to purchase seemingly high valued products regardless of its value, creating a discrimination against poor people simply because the system benefits the higher class at the expense of those in the lower classes. Classism is not just about wealth inequality because human beings do not go around with their bank account balance written on their foreheads rather, they give an impression of their social status through the products and services

they consume, and it is for this reason that classism is not entirely based on wealth inequality but rather based on judgment, rejection and hurdles tied to one's perceived social standing. Classism is therefore the judgment system that makes consumerism matter.

Consumerism in the 19th century socially encouraged people to prioritize wants over needs. People were encouraged to favour their emotions over necessity when purchasing goods and services. This brought about identity formation which creates the belief that what you own (cars, clothes, and phones) signals who you are which is often used to judge your taste, success and group affiliation. It encouraged the thought that products can become obsolescence, so efforts should be made towards acquiring it before then, which is why a person might suddenly start to feel embarrassed about using a particular product if a newer model of the same product is released into the market. Consumerism was used as a tool for widening inequality. People were only treated right if they are perceived to be wealthy as a result of the possession of a particular product considered to be peculiar to those in high class. This act encouraged people to invest more in goods that they do not need but desire. Consumerism itself was a tool used by manufacturers to enhance purchase while improving the economic value of their land. It was used as a means for promoting a cultural and economic belief that buying and owning more goods is good for individuals and society at large, creating the idea that purchasing those things can result in personal happiness and satisfaction.

Students often engage in consumerism, beyond just wanting to buy things, they engage in it for social belonging and peer pressure, as fitting in is often a top priority. Owning the same clothes, gadgets, or sneakers as their peers is a way to avoid standing out or being bullied, and to signal membership in a particular group. Some students also practice consumerism for identity and self-expression because adolescence and young adulthood are crucial for identity formation. Students use brands, tech, and fashion to express who they are, and who they want to be. Emotional relief and stress management is

another reason some students engage in consumerism, they use it as a tool for coping with academic pressure, social anxiety, or family issues. Consumerism can bring about retail therapy because buying something new can sometimes provide a quick dopamine hit, creating happiness and a temporary sense of control or comfort, even if the feeling doesn't last. Marketing and digital Influence are also huge reasons students practice consumerism. Social media influence creates a fear of missing out which often blurs the line between need and want, further promoting the prioritization of wants over needs. Lack of financial literacy is not left out as a reason for consumerism among students as many students are yet to learn the culture of saving and investing for the future, which makes them highly vulnerable to impulsive buys and overspending.

However, Consumerism in the 21st century, often referred to as safety-oriented consumerism has gone beyond the need to acquire things; it has become a very complex web of individual consciousness about what is consumed, how it is consumed, as well as the long-term implications of those choices on individuals' health. The access of information about health prioritization and its many benefits has helped a large number of people to look beyond wants while paying special attention to needs According to Adams (2026), Consumerism in recent times is an ideology that links consumption to well-being and economic success, which afterwards fuels economic growth but promotes psychological issues like increased anxiety and depression, if the health implications are overlooked. The evolution of consumerism in developing economies is a widely accepted development among young adults, especially tertiary institution students due to globalization and a strong desire for a healthy lifestyle (Chaudhary & Bisai, 2018). Consumerism now leads students to believing that increasing personal consumption of seemingly healthy goods and services is the ultimate path to happiness, success and social status with special attention to healthy living. The internet is flooded with videos of products and their health benefits as it seems to be the new selling point. The advent of technology has made it even easier to understand the nutritional value of products being consumed

which is more important than the social value. The importance of health, exercises and healthy lifestyle is getting a lot of attention from both old and young. It is no longer uncommon to see people using exercises and nutrition to manage and treat illness and diseases. Consumerism in recent times now advocates for minimalism with emphasis on owning only what adds value, it also encourages circular economy with special attention on repair, reuse and recycle, and also advocates for sustainable consumption which is eating for nutrition rather than for recognition.

Nair (2012) noted that though technology has made it easy to access valuable information about health and nutritional values of consumables, many undergraduates are yet to embrace the positive side of consumerism which is safety-oriented consumerism for reasons yet unknown. Some students still consume products based on brand names and peer influence regardless of their health implications. Some of the reasons include social media, which is the ultimate consumerist machine, which encourages viewing some normal life processes such as aging, stress induced forgetfulness as medical conditions requiring some products for correction thereby making the students to consume some products that are not necessary. Students may also be vulnerable to exploitation, and this vulnerability is especially acute in health-related consumption, particularly the consumption of substances, such as caffeine, often used by students to cope with academic stress (Pulla et al., 2024), at the expense of their health. Some students also still practice the 19th century consumerism because they do not have the right attitude towards health. Developing the right mind-set, which are the internal beliefs that they have to be proactive, which prevents health challenges from happening at all, is often ignored. The lack of consumer dynamics, which is the change in consumers' behaviour, preferences and decision-making processes, might also be a major challenge for students as consumer dynamics is a major factor in the achievement of safety-oriented consumerism.

In Nigeria, these consumer dynamics are aggravated by a generalized

and life-threatening public health crisis of counterfeit and substandard products disguised as necessary and healthy. In this age and time the capacity to use artificial intelligence tools to decipher complex chemical compounds in consumables or use it to cross reference NAFDAC registration number is still largely undetermined (Ahiakwo, 2025). The National Agency for Food and Drug Administration and Control (NAFDAC) has always sounded its alarm on the falsified medicines and foods that are contributing to the failure of treatment and the resistance to antibiotics as well as serious damage to organs (NAFDAC, n.d.). Recent enforcement actions in Nigeria found counterfeit products worth billions of Naira, ranging from injectables to everyday food staples, this however makes up between 13% and 30% of the open market (Vanguard News, 2025; The Nation, 2024). This counterfeit epidemic has been directly linked to the rise in chronic kidney and liver failure among the young population, shifting the awareness of nutrition from a lifestyle choice to a life-saving skill (The Nation, 2024; Premium Times, 2025).

Amidst this crisis lies the advent of Artificial Intelligence (AI) which has become a household name. AI is a branch of computer science that specializes in creating machines that are capable of human-like cognition and learning, it has made its way from a type of speciality to being prevalent in the decision-making process. Nigeria currently dominates the use of generative AI in the global south, with about 70% of the online population reporting generative AI adoption, which is much higher than the global average of 48% (Vanguard News, 2025). Among Nigerian university students, the interest in AI technologies, such as chatbots for fact checking and information synthesis is remarkably high (Anih, 2025; Ebiringa et al., 2025). This demography, described as "digital natives," is increasingly relying on Large Language Models (LLMs) and recommendation algorithms as their main mediators in the acquisition of information (Dwivedi et al., 2021). However, the integration of AI into the consumer habits of students can create a culture of instant gratification and impulsive consumerism algorithmically (Dai & Liu, 2024). This can however be particularly frightening as students can decide to totally depend on

AI tools when taking even simple decisions such as when to drink water or even what fruit to eat at a certain time.

Though students show a high willingness to use AI tools, a huge gap remains in their digital health literacy, particularly, their ability to discriminate between AI-generated hallucinations and evidence-based nutritional advice (Sosa-Holwerda et al., 2024). This is therefore a major challenge in the use of AI tools to protect their health from negative consumerism. As mentioned by Madume et al. (2026), AI based interactive tools represent a dynamic pedagogical link, which produces a high enhancement of awareness of healthy living in comparison with traditional sources of information. In a high density academic environment such as Osun State, students are at a crossroads. According to Ebiringa et al., (2025) students show a high level of adoption of Generative AI tools in Nigerian Higher Education. In spite of this there is a dearth of empirical evidence with specific regard to the use of AI tools to increase nutritional safety or cautious consumerism, also there exists a reality that often favours the processed and potentially dangerous alternatives usually as a result of economic factors, time factors, and peer pressure which might make it very difficult for them to practice safety-oriented consumerism.

The prevalence of the consumption of unnecessary food and drugs in Nigeria has reached a ---highly concerning level as it is directly associated with the increasing mortality rate and kidney and liver-related diseases among the undergraduate population (NAFDAC, 2023). Despite the availability of digital health literacy through the use of Artificial Intelligence (AI) tools which is a potentially transformative solution to personalized nutrition and risk mitigation, little research has been conducted on its actual impact on students' consumption behavior in Nigeria. Students in Nigeria have continued to display dangerous dietary behaviors and these behaviors are leading to very serious medical conditions such as Diabetics, High blood pressure, Cancer, kidney and Liver diseases as well as other preventable terminal illnesses. With a focused investigation on safety-oriented consumerism among university undergraduates in

Osun state, one might be able to have an understanding of how technology can be used to influence positive consumption, which can promote healthy living among university undergraduates. This study, therefore, investigates the influence of artificial intelligence tools on safety- oriented consumerism among university undergraduates in Osun state, Nigeria.

Statement of Problem

The prevalence of counterfeit food and drugs in Nigeria is directly associated with the increasing rate of mortality and kidney-related diseases among the undergraduate population (NAFDAC, 2023). According to Ebiringa et al., (2025), there is a sufficient availability of digital health information and high levels of adoption of Generative AI tools in Nigerian higher institutions, however, the students in Nigeria have continued to display dangerous dietary behaviors which are leading to severe health consequences such as obesity, malnutrition, and terminal illnesses. AI tools can be a dual faced tension that empowers students to check the number of the National Food Drugs Administration (NAFDAC) registration, and decode the complex nutritional labels, however it can also be a tool that promotes unhealthy consumerism through biased algorithms and the spread of misinformation (Appel et al., 2020). Several studies have shown the relationship between AI tools and students' academic and career problems, but there is a dearth of empirical evidence with specific regard to the use of AI tools to increase nutritional safety and safety-oriented consumerism. While Artificial Intelligence (AI) is a potentially trans-formative solution to personalized nutrition and risk mitigation, little research has been conducted on its actual impact on student nutritional behavior. This research therefore aims to fill this gap by assessing the nexus between the adoption of AI tools, consumer patterns, and safety-oriented consumerism.

Study Objectives

The study

- a. investigated students' level of awareness on the use of AI

- b. application tools for nutritional guidance examined the influence of its awareness on safety-oriented consumerism among university undergraduates in Osun state, Nigeria.

Research Questions

The specific questions guiding the study are:

- 1) what is students' level of awareness on the use of AI application tools for nutritional guidance
- 2) what is the influence of this awareness on safety-oriented consumerism among university undergraduates in Osun state, Nigeria

Hypothesis

There is no significant relationship between Artificial Intelligence tools and nutritional awareness among university undergraduates in Osun state.

Theoretical Framework

This study is hinged on the theory of planned behavior created by Ajzen (1991), it describes the subsequent behavioral shift in the area of consumerism. This theory believes that human consumption is often influenced by a number of factors which are usually not static but rather dynamic. This theory suggests that an individual's behavior is driven by his or her intention which is shaped by three things their attitude, subjective norms or perceived behavioral control. For undergraduates in Nigeria, positive attitude towards Safety-Oriented Consumerism is a major determinant of their consumerism. The social influence of health conscious peers is also a key determinant, as the interaction with their peers dictates their consumption of certain goods and services. Furthermore, AI tools improve the "Perceived Behavioral Control" of a student by giving them the digital tools to verify the authenticity of a product instantly as AI actually manifests itself in the apprehensive choice of food and drugs to prevent health risks such as renal failure (Chaudhary & Bisai, 2018).

Methodology

The study adopted the cross-sectional survey research design. The population for this Study comprised of undergraduate students in universities located in Osun State with major focus on Obafemi Awolowo University (OAU) and Oduduwa University because of population density and diversity. The sample size comprised, 316 respondents using Taro Yamane formula and a multi-stage sampling procedure. Two (2) universities out of 15 universities in Osun state were selected using purposive sampling technique, in other to achieve comparative goal which could provide a basis for future study in that field. The researcher selected one public university and one private university because of the possibility of different management styles in each of the universities which could have an effect on students' attitude towards consumption. A total of Seven (7) faculties, Four (4) faculties from OAU and Three (3) faculties from Oduduwa University were selected using the simple random sampling technique, departments in each of the faculties were selected using stratified sampling technique, subsequently within each stratum the respondents were selected randomly to ensure an equal chance of participation and avoidance of bias. An adapted online questionnaire of 18 items (AI-Consumerism and Nutritional Awareness Questionnaire (AICNAQ)) was used. The questionnaire was adapted from reviewed literature on consumerism and FAO and WHO knowledge, attitudes and practice survey. The reliability of the instrument was measured using the Pearson Moment Correlation Coefficient (PPMCC) analysis ($r=0.96$). Data collected were analyzed using relevant descriptive and inferential statistics. Hypothesis was tested at 0.05 level of significance.

Result

Table 1: Table 1 presents students' level of awareness on the use of AI application tools for nutritional guidance

Table 1: Students' level of awareness on the use of AI application tools for nutritional guidance

Level of Awareness	Range	Frequency	Percentage (%)
Low	5 - 7	11	3.5
Moderate	8 - 10	121	38.3
High	11 - 13	167	52.8
Very high	14 - 16	17	5.4
Total		316	100.0

This table shows the level of students' awareness on the use of AI application tools for nutritional guidance. Respondents who scored 5 - 7 of the total score were categorized into 'Low', those who scored 8 – 10 were categorized into 'Moderate', those who scored 11 – 13 were categorized into 'High' and the respondents with 14 and above scores were categorized into 'Very High' level. The class intervals were computed based on the minimum and maximum values. The minimum score was 5 while the maximum score was 16 which give 11 as the range of the values. The class interval was approximated to 3 and the scores were grouped as Low (5 – 7), Moderate (8 – 10), High (11 – 13) and Very High (14 – 16).

The result shows that 11 students representing 3.5% of the total sample for the study had low level of awareness, 121 representing 38.3% had moderate level, 167 representing 52.8% had high level while 17 representing 5.4% had very high level of awareness on the use of AI application tools for nutritional guidance.

Table 2: Table 2 presents the influence of AI awareness on safety-oriented consumerism among university undergraduates in Osun state, Nigeria

Table 2: Influence of AI awareness on safety-oriented consumerism among university undergraduates in Osun state, Nigeria

Knowledge Indicator	Accuracy Rate (%)	Remark
Can you Identify a Balanced Diet	99.7%	Excellent
Do you know the role of Carbohydrates	91.5%	Excellent
Do you know the vitamin that enhances bright eyes	43.4%	Below Average
Do you know the risks associated with excess consumption of Sugar?	95.3%	Excellent
Are you aware of the impact of Counterfeit Products on human health	99.7%	Excellent
Do you know the recommended daily water intake	62.7%	Average
Are you aware of what makes up a healthy plate?	95.9%	Excellent
Do you know the meaning of fortified food	50.9%	Average
Do you know the benefits of fruits/ \vegetables	92.4%	Excellent
Do you know how to verify product's authenticity? (NAFDAC/Expiry/Prod date)	95.9%	Excellent
Overall Mean Knowledge Score	8.27 / 10	High

Table 2 presents an analysis of the nutritional knowledge assessment of the respondents. 99.7% of the respondents agreed to being able to correctly identify a healthy diet composition and confirmed that counterfeit products can lead to kidney damage. 95.9% agreed to the use of NAFDAC registration number, and expiry/production date for product verification. 95.3% had the knowledge of the risks associated with excess consumption of sugar to include obesity and diabetes. 95.9% are aware of what makes a healthy plate. However, relative weakness was observed in the respondents' knowledge of micro nutrients. Specifically, only 43.4% had the knowledge of the role of Vitamin A's in supporting eye brightness, and 50.9% had a knowledge of the concept of “fortified” food. The mean nutritional literacy score was 8.27 of 10. This indicates that there is generally, a high level of nutritional knowledge among the population

Table 3: Presents the influence of the awareness of AI application tools on safety-oriented consumerism among university undergraduates in Osun state, Nigeria.

Table 3: The influence of the awareness of AI application tools on safety-oriented consumerism among university undergraduates in Osun state, Nigeria

Items	Mean Score ($\bar{x}$)	Remark
Awareness of AI Verification Tools	3.20	High Awareness
Self-perceived skill in using AI apps	3.18	High Literacy
Frequency of use for nutritional info	2.17	Low Frequency
Recent usage (scanned products in past month)	2.63	Emerging Use
Regular reliance on AI safety scans	2.25	Low Reliance
Grand Mean ($\bar{x}$)	2.69	Moderate Adoption

NB: The Benchmark for the remark decision is 2.50 of 4.0

The mean score for the awareness of AI application tools and its use for verification were 3.20 and 3.18 respectively. 266 (84.2%) out of the 316 respondents agreed to being cognizant of AI verification tools and its operations. This indicates a high level of awareness and literacy. The mean score for the use of AI application tools specifically to verify nutritional information before buying or consuming food was 2.32 which falls below the 2.50 threshold, indicating a low frequency of use for nutritional information. Students agreed to a mean score of 2.63 for past-month usage of AI tools for scanning and verification, while the mean score on the regular reliance on AI for nutritional information seeking was 2.25, which indicates that AI is currently used as an occasional tool rather than a primary shopping companion. The overall AI adoption mean score was 2.69 of 4.0 indicating that the students are very aware of AI application tool's potential and feel confident in their ability to use it, but are yet to make AI application tools their primary shopping companion. The benchmark of 2.50 was derived from the midpoint of the instrument's 4-point Likert scale, calculated as the mean of the scale's numerical values, i.e., $(1 + 2 + 3 + 4) \div 4 = 2.50$. This midpoint

convention is a widely used approach in survey-based social science research for converting ordinal Likert responses into a binary decision threshold.

Hypothesis: There is no significant relationship between nutritional awareness and Artificial Intelligence adoption among the tertiary institution students in Ile-Ife.

Table 3: Summary of Pearson Product-Moment Correlation (PPMC) Analysis of the Relationship between AI Adoption and Nutritional Awareness

Pearson Correlations Between Artificial Intelligence and Nutritional Awareness

		Artificial Intelligence	Nutritional Awareness_Total
Artificial Intelligence	Pearson Correlation	1	-.299**
	Sig. (2-tailed)		.00
	N	316	316
Nutritional_Awareness_Total	Pearson Correlation	-.299**	1
	Sig. (2-tailed)	.000	
	N	316	316

This result shows a weak negative relationship between artificial intelligence adoption and nutritional awareness ($r = -.299$, $p < .05$). This implies that as artificial intelligence adoption increases, the nutritional awareness decreases. Therefore the null hypothesis is rejected.

Conclusion

Findings from this study concludes that though a large number of the

respondents indicated high level of awareness, there is however, only an emerging adoption and usage of AI application tools for healthful consumption among university undergraduates.

Recommendations

The study therefore recommends that,

- a) Tertiary institutions should integrate “Digital Health Literacy” into the General Studies (GNS) curriculum to move students from mere awareness to the active application of AI in health safety.
- b) The National Agency for Food and Drug Administration and Control (NAFDAC) should develop or endorse AI-powered mobile scanning applications that allow students to verify products instantly, bridging the gap between digital awareness and consumer action.
- c) Relevant stakeholders should ensure public and digital health awareness to promote the adoption of AI verification tools not just as a fun tool for nutritional guidance but also as a preventive lifestyle habit.

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