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Effect of Digital Advertisement on Consumer Behaviour in the Pharmaceutical Industry

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Abstract

This study examines the effect of digital advertising on consumer behaviour in the pharmaceutical industry in Oyo State, Nigeria. Using a quantitative research design, data were collected from 287 respondents across major pharmaceutical outlets through structured questionnaires. The study employed descriptive statistics and Structural Equation Modelling (SEM) to assess the relationships between digital advertising exposure, consumer engagement, and purchasing decisions, while also examining the moderating role of cultural differences. Findings indicate that digital advertisements, particularly on social media platforms, significantly influence consumer behaviour by enhancing engagement, brand awareness, and purchase intentions. The study also reveals that cultural differences do not significantly moderate this relationship, suggesting a broadly uniform impact within the study context. The results underscore the strategic importance of well-crafted digital advertising in shaping consumer decisions in the pharmaceutical sector. The study recommends continued research on emerging digital platforms and the long-term effects of digital marketing on consumer behaviour to optimize industry practices.

Keywords: Digital advertisement, Consumer behaviour, Advertising strategies, Cultural sensitivity

INTRODUCTION

Advertising is the lifeblood of modern consumer economies, an omnipresent force that has significant influence over everyday activities. In an era characterized by an incessant barrage of advertisements across an ever-expanding array of media channels, understanding the intricate dynamics between advertising and consumer behaviour has never been more imperative. At the heart of advertising lies its content; a carefully crafted blend of messages, imagery, narratives, and emotions. Advertising content has the power to inspire, evoke, and persuade. It can appeal to the deepest desires of the human psyche or tap into our rational faculties. The choice between emotional appeals and rational arguments, the use of humor or sentiment, and the selection of visuals and storytelling techniques are all deliberate decisions made by advertisers to achieve specific objectives (Im & Huh, 2021).

In the age of digital ubiquity, the channels through which advertisements reach consumers have expanded exponentially. From traditional platforms like television, radio, and print media to digital platforms like the vast realm of online and social media, each channel possesses a distinct arsenal of characteristics. Television commercials offer sight, sound and motion while social media advertising thrives on interactivity and personalisation. Consumers exposed to advertisements on social media platforms may be more inclined to engage with brands directly, shaping their preferences and loyalty differently from those influenced by traditional, one-way broadcast media.

Digital advertising has the potential to exert lasting effects on consumers. The frequency and duration of exposure to advertising messages have been shown to engender brand loyalty, habitual buying behaviour, and even brand advocacy over time (Pozharliev, Rossi & De Angelis, 2022). The globalized marketplace is a mosaic of diverse cultures, each with its unique norms, values, and worldviews. Digital advertising is not immune to the influence of culture; it both reflects and shapes cultural narratives. Recognising the role of cultural factors in consumer responses to digital advertising is fundamental. What resonates with consumers in one cultural context may fall flat or even offend in another. Thus, understanding the intricate interplay between advertising, culture, and consumer behaviour is indispensable for businesses navigating international markets and striving to establish cross-cultural resonance (Im & Huh, 2021).

Objectives of the Study

This study's aim are to:

i. explore the effect of digital advertisement on consumer behaviour.
ii. assess the effect of advertisement content on consumers' purchasing decisions.
iii. investigate the influence of social media platforms advert on consumers' purchasing behaviour for products or brands compared to traditional media channels.
iv. examine the moderating effect of cultural differences on the link between advertising and consumer behaviour.

The following hypothetical statements were tested in this study:

H_{01}: Digital advertisement has no significant effect on consumer behaviour.

H_{02}: Advertising content has no significant effect on consumers' purchasing decisions.

H_{03}: Social media platforms advert have no significant effects on consumers' buying behaviour for products or brands compared to traditional media channels.

H_{04}: There is no significant relationship between the moderating effect of cultural differences on the link between advertising and consumer behaviour.

LITERATURE REVIEW

Advertisement is a multifaceted communication process that involves the creation and dissemination of messages, typically paid for, with the primary goal of promoting goods, services, ideas, or brands to a target audience Martins *et al.* (2019). Rauwers *et al.* (2018) suggested that it is a strategic form of communication used by businesses, organisations, or individuals to influence and persuade potential consumers or stakeholders, ultimately driving specific actions or behaviours. The comprehensive definition of advertisement encompasses various elements and

functions. Raza *et al.* (2020) define advertisement 'as a vehicle for conveying information about products, services, or ideas to a wide audience'. It involves the strategic creation of messages that are designed to be persuasive, memorable, and influential.

Advertisement involves tailoring messages to specific demographic groups based on factors such as age, gender, income, and interests and understanding the psychographics of the target audience which allows for more nuanced and personalized messaging (Sama, 2019). According to Kim & Hanssens (2017), advertisement seeks to influence consumer behaviour, encouraging actions such as purchasing a product, adopting a new behaviour among others. Emotional and psychological appeals are often embedded in advertisement to create a connection with the audience and elicit a desired response.

Consumer behaviour is a multifaceted concept that involves the study of how individuals, groups, or organisations make decisions and take actions related to the purchase, use, and disposal of goods, services, ideas, or experiences. Understanding consumer behaviour is crucial for businesses and marketers as it provides insights into the factors influencing purchasing decisions and helps formulate effective marketing strategies (Im & Huh, 2021).

Bailey *et al.* (2016) opined that there are factors that influences consumer behaviour which includes cultural factors such as cultural norms, values and beliefs; social factors such as reference groups like family, friends, social circles, societal values, and social class; personal factors such as age and life stage, occupation and economic status; psychological factors such as perceptions, underlying needs and motivation; and individual differences. Others are advertising, branding, and promotional efforts which play a significant role in shaping consumer perceptions and influencing purchasing decisions (Ioannou *et al.*, 2018).

Theoretical Literature Review

Reactance Theory: This theory posits that individuals may react defensively when they perceive their freedom of choice is threatened or restricted. Understanding reactance theory can help advertisers strike a balance between persuasion and respecting consumers' autonomy. By creating ads that empower consumers, offer choices, and maintain transparency, advertisers can positively influence consumer behaviour. Conversely, advertisement that is overly coercive or perceived as manipulative can lead to consumer resistance and suboptimal results (Pozharliev *et al.*, 2022).

Persuasion Knowledge Theory (PKT): is a psychological framework developed by Friestad and Wright in 1994, which seeks to understand how individuals process and respond to persuasive messages and attempts to influence their attitudes and behaviours. This theory posits that people possess knowledge about persuasion tactics and strategies, and this knowledge influences their receptivity and resistance to persuasion (Hyun *et al.*, 2010). PKT emphasizes the role of persuasion knowledge in shaping individuals' responses to persuasive messages. When people detect persuasive intent, they may engage in critical thinking, scrutinizing the message's content and the persuader's credibility. They also may activate persuasion defence to resist unwanted influence.

Theory of Reasoned Action (TRA); TRA suggests that consumer behaviour is driven by an individual's intention, which, in turn, is influenced by their attitude toward the behaviour and subjective norms (Kaur & Hundal, 2015). It infers that consumers form intentions based on their attitudes and subjective norms created or reinforced by advertisement. Thus, effective advertising campaigns can impact consumer behaviour by shaping attitudes, reinforcing social norms, and leading to desired actions, such as product purchase and brand loyalty. By aligning advertising strategies with TRA principles, marketers can better understand and predict consumer behaviour and design more persuasive campaigns (Niederdeppe *et al.*, 2023).

Media Priming Effect Theory (MPE): This theory is based on the idea that media can "prime" or activate specific mental constructs, such as attitudes, values, or stereotypes, which then affect how people interpret subsequent information (Sheng *et al.*, 2023). Priming occurs when exposure to media content (news, movies, and advertisements) among others activate specific cognitive structures, which can influence subsequent cognitive and behavioural responses.

Social Exchange Theory: When applied to digital advertisement and consumer behaviour, Social Exchange Theory suggests that consumers assess the value they receive from advertisements in terms of information, entertainment, or emotional connection. If consumers perceive a fair exchange of value, they are more likely to respond positively to advertising messages.

Theory of Planned Behaviour (TPB): TPB emphasizes that consumer behaviour is determined by the intention to perform that behaviour, and this intention is influenced by three key factors: attitude, subjective norm, and perceived behavioural control (Raza *et al.*, 2020). With TPB, marketers can design campaigns that focus on influencing the key factors within TPB to positively affect consumer attitudes, social norms, and perceived control. This leads to more effective advertising strategies that drive consumer behaviour, including product adoption, brand loyalty, and purchase decisions (Bailey *et al.*, 2016).

Empirical Literature Review

Tarabella *et al.* (2021) examined the effects of digital advertisements on consumer choices and health using MLE. The result showed that advertisements can be seen to have a significant and positive effect on consumers' choices. Ioannou *et al.* (2018) explored the impact of digital advertising on behaviour of bank consumers using PLS. The findings suggest that digital advertising has a marginal role in the said decision-making stages but essentially provide insights that open a window of opportunity for financial advertisers to develop effective advertisements. A study conducted by Niederdeppe *et al.* (2023) investigated the effect of pharmaceutical direct-to-consumer advertising for heart disease and diabetes on physical activity and dietary behaviour using OLS. The results found very little or no evidence of a meaningful relationship between DTCA exposure and physical activities and dietary behaviour.

Bamfo *et al.* (2019) investigated the effect of television adverts on children's purchase behaviour using OLS. The findings indicate that quality information, information intrusiveness, and likable adverts have positive and significant impacts on children purchase behaviour.

Additionally, Raza *et al.* (2020) established the impact of advertising appeals on Consumers' behavioural intention and attitude using GMM. The results showed that there was a strong positive relationship between advertising appeals and consumers' behavioural intentions. Also, a study conducted by Im & Huh (2021) assessed the effects of conflicting prescription drug information from direct-to-consumer advertising and drug injury advertising on patients' beliefs and medication adherence using PLS. This study provided important evidence of a negative interaction effect of exposure to DTCA and drug injury ads on patients' medication adherence, which demonstrates that the influence of DTCA and drug injury ad exposures on patients' medication adherence is not an independent, separate process but an interactive process.

Dehghani & Tumer (2015) examine the effectiveness of Facebook advertising on enhancing purchase intention of consumers using GMM. The results showed that Facebook advertising significantly affected brand image and brand equity, both of which factors contributed to a significant change in purchasing intention. Similarly, Sriram *et al.* (2021) investigated social media advertisements and their influence on consumer purchase intention using SEM. It was discovered that elements such as attention-grabbing details, celebrity endorsement, and emotional appeal have a considerable impact on customer purchase intention. In a related manner, Weismueller *et al.* (2020) evaluated how advertising disclosure and source credibility affect consumer purchase intention on social media using PLS. The findings revealed that social media influencers and advertising disclosure may be used on social media to effectively increase consumer purchase intention.

Sharma *et al.* (2021) also looked into the impact of SMS Advertising on Consumer Purchase Intention using PLS-SEM. The findings suggested that SMS advertising perception has a significant effect on purchase intention, mediated by advertising value and attitude toward SMS advertisement. In a related manner, Rauwers *et al.* (2018) investigated the influence of Creative Media Advertising on Consumers' affective and behavioural responses and consumers' cognitive responses using SEM. The Results showed that creative media ads not only improve consumers' affective and behavioural responses but also consumers' cognitive responses.

In the same view, Martins *et al.* (2019) conducted a research study on the effects of smartphone advertising on consumers' purchase Intention using PLS. The results allowed marketers and advertisers to understand how smartphone advertisements contribute to consumer purchase intention. However, Kim & Hanssens (2017) explored advertising and word-of-mouth effects on pre-launch consumer interest and initial sales of experience products using pooled OLS. Their findings highlight an important limitation of the role and power of pre-launch advertising in generating consumer interest in new experience products.

Methodological Literature Review

Structural Equation Modeling (SEM) is a statistical method used in the field of marketing and consumer behaviour to study the complex relationships between variables, including the effect of digital advertisement on consumer behaviour. It provides a comprehensive framework for analysing the direct and indirect effects of various factors within a single model. Rauwers *et al.* (2018), Hoque *et al.* (2018), Kaur and Hundal (2015), and Hyun *et al.*, (2010) adopted Structural Equation Modeling (SEM) to gain a more nuanced understanding of how digital advertisement influences consumer behaviour, whether through direct effects or mediated pathways. This approach provides a sophisticated tool for marketers and advertisers to optimise their strategies and better understand the mechanisms that drive consumer responses to advertising campaigns.

Ordinary Least Squares (OLS) is a widely used estimation technique in econometrics. OLS regression can be used in analysing the relationship between advertising expenditures and consumer responses. In a study conducted by Bailey *et al.* (2016), Dehghani and Tumer (2015), and Ioannou *et al.* (2018), Ordinary Least Squares (OLS) was used to provide valuable insights into the linear relationship between digital advertisement investments and consumer behaviour outcomes. A positive coefficient suggests a positive effect on consumer behaviour, while a negative coefficient indicates a potential need for strategy adjustment.

Partial Least Squares (PLS) is a statistical method used in structural equation modeling and regression analysis. Unlike OLS, PLS is particularly useful when dealing with complex relationships and small sample sizes, making it suitable for research on the effect of digital advertisement on consumer behaviour.

Generalized Method of Moments (GMM) is an estimation technique widely used in econometrics and statistics. It is particularly valuable when dealing with models that involve moment conditions, where population moments (such as means, variances, or covariances) are matched with sample moments. GMM can be applied to estimate parameters of interest and test economic theories. GMM is versatile and can handle various types of data and model specifications. In a research conducted by Weismueller *et al.* (2020) and Tarabella *et al.* (2021), GMM was employed to specify moment conditions based on theoretical assumptions about consumer behaviour and digital advertisement effects. These moment conditions can capture different aspects of consumer responses to advertisement, such as changes in preferences, market share dynamics, or pricing strategies, depending on the research focus.

One of the key advantages of GMM is its ability to address endogeneity concerns effectively. Endogeneity arises when advertising decisions are influenced by unobserved factors affecting consumer behaviour, leading to biased estimates in traditional regression models. GMM addresses this issue by using instrumental variables, which are external variables correlated with advertisement but not directly correlated with the error term in the consumer behaviour equation.

Bayesian Information Criterion (BIC) is a statistical criterion used for model selection among a set of candidate models. It provides a way to balance the goodness of fit of a model with the complexity of the model, penalising models that are too complex. In studying the effect of digital advertisement on consumer behaviour, BIC was used by Sharma *et al.* (2021) and Khandelwal & Bajpai (2011) to compare different models that describe the relationship between digital advertisement variables and consumer responses.

Three Points Estimation is typically used in project management to estimate uncertain variables by considering the best-case scenario (optimistic estimate), worst-case scenario (pessimistic estimate), and most likely scenario (realistic

estimate). This method enabled Lacroix *et al.* (2020) and Ioannou *et al.* (2018) to make a comprehensive evaluation of the potential outcomes of digital advertisement on consumer behaviour, considering both positive and negative scenarios.

METHODS

Research Design

The study employed a descriptive survey design to investigate the effect of digital advertisement on consumer behaviour in the pharmaceutical industry in Nigeria. The descriptive aspect allows for the empirical collection, analysis, and interpretation of data, offering a snapshot of the current status of events without manipulation. Primary data were obtained from online surveys. This provides an empirical, statistically sound investigation of the effect of digital advertisement on consumer behaviour in the pharmaceutical industry in Nigeria.

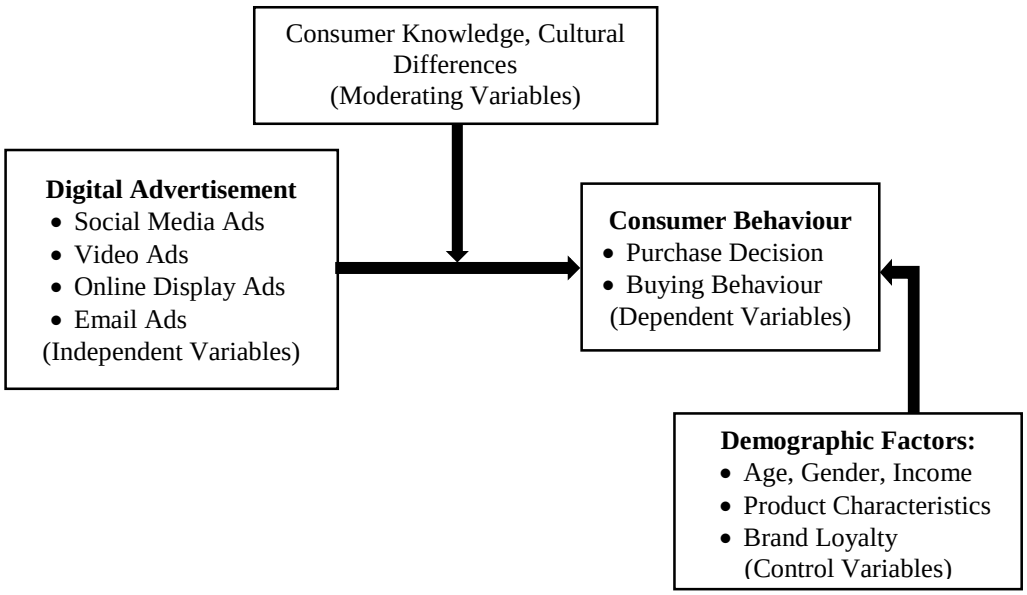

Figure 1: Conceptual Framework

The study employed a descriptive survey design to investigate the effect of digital advertisement on consumer behaviour in the pharmaceutical industry in Nigeria. The descriptive aspect allows for the empirical collection, analysis, and interpretation of data, offering a snapshot of the current status of events without manipulation. Primary data were obtained from online surveys.

Study Area

The study area encompasses a prominent state in the Southwestern part of Nigeria, Oyo State. This state serves as an important hub for national economic development and industrial expansion. It is one of Nigeria's economic and industrial centre, and with its rich industrial landscape and variety of pharmaceutical industries, it offers a complete setting for examining the viewpoints and experiences of consumers of pharmaceutical products.

Within Oyo State, the focus was on the capital city, Ibadan, including its local government areas because it is home to a considerable number of pharmaceutical businesses. The three major selected pharmacies are Kunle Ara Pharmacy (Ibadan North), Goodall Pharmacy (Ibadan South-East), and Danax Pharmacy (Ibadan North-West) Local Government Areas, Ibadan. This state was chosen to provide a comprehensive cross-section of Nigeria's pharmaceutical industry

Study Population

The research population consists of consumers of pharmaceutical products who regularly visits pharmacy outlets in Oyo State, Nigeria. In addition to making significant contribution to the industrial and economic growth of Oyo State, this diversified and dynamic customers are essential to the day-to-day operations of the pharmaceutical sector.

The study population is thought to be unlimited in nature because of the possible complexity and

variation of pharmaceutical enterprises in the state. This is due to the difficulty in precisely estimating the number of pharmaceutical businesses within this vast area. As a result, a representative sample of consumers of pharmaceutical products who regularly visits major pharmacy outlets in Oyo State were made the focus of the study.

Sample Size and Sampling Techniques

Determining the appropriate sample size is a crucial step in research design, ensuring that the data collected are both statistically significant and representative of the larger population.

The sample size estimation employs a formula for a finite population with an unknown size,

$$n = (Z^2 * p * q) / (E)^2$$

Where:

- n - is the required sample size
- Z - is the Z-score corresponding to the chosen confidence level
- P - is the estimated proportion of the population with a particular characteristic (assumed to be 0.5 for maximum variability)
- Q - is 1 – p = 1-0.5 = 0.5(q represents the proportion of the population that does not have the characteristics in the study)
- E - is the desired margin of error

$$n = (1.71)^2 * 0.5 * 0.5 / (0.05)^2$$
$$n \approx 292$$

The sampling technique that was used for this study is purposive sampling. Three major pharmacy outlets were purposively selected based on factors such as pharmacy size, adequate customer database records, and ease of reach to consumers. This method allows for ease in data collection which were based on the voluntary participation of respondents, ensuring a comprehensive range of perspectives. The use of purposive sampling enhances the study's ability to capture insights from various consumer segments of pharmaceutical products in major selected pharmacies in Oyo State. The resulting sample offer a comprehensive view of the purchase decisions and buying behaviour of consumers of pharmaceutical products to digital advertisements in Oyo State

Instrument

A well-structured questionnaire was developed using Google forms to obtain relevant information for the study. A survey containing series of questions were administered to the enrolled participants. The structured questions were divided into different sections and designed to have options to tick wherever applicable.

Section A dealt with the bio data of the respondent which include gender, age, marital status, educational level, status and experience. While the section B covered questions related to how often do consumers encounter advertisements and have they previously purchased a pharmaceutical product due to a digital advertisement. Section C had questions assessing the effect of digital advertisement on consumer behaviour, examining advertisement content on consumers purchasing decisions, and including the influence of social media platform adverts on consumers buying behaviour for products or brands compared to traditional media channels and questions exploring the moderating effect of cultural differences on the link between advertising and consumer behaviour.

The study adopted a Five-Point Likert Scale ranging from strongly agree to strongly disagree.

Data collection

A Google Form questionnaire was created, and the survey link was shared with Managers of the selected pharmacy outlets, who then sent it to potential respondents via email, social media platforms (Instagram, Facebook, and WhatsApp, among others), and the pharmacy's website to reach respondents. This approach allowed respondents to conveniently fill out the questionnaire at their own preferred time. Selected pharmacies' customers were informed about the project's execution and asked for consent to obtain the necessary data for research analysis. Since the study used an online survey, the data collection method was straightforward, and all data were electronically stored, coded, and collated. The collected data were then used for the analysis.

Method of Data Analysis

Data to be used for the analysis were obtained from the respondents through questionnaire survey which were conducted through online survey. The data gathered were quantifiable in nature and each survey conducted was submitted online. The SPSS (Statistical Package for Social Sciences) estimation

technique was employed for the data analysis for the study. Both descriptive and inferential statistical method of analysis were used for the study.

The descriptive statistical method was used to analyze the data obtained from the socio-demographic section. The data were based on simple percentages and frequency tables which appropriated discussion of the data results.

The inferential statistical method was used to investigate the hypotheses of the study. The suitable technique that was used to achieve a standard investigation for the hypotheses was Analysis of Variance (ANOVA) analysis at 0.05% significance level.

RESULTS AND DISCUSSION

Questionnaire Administration and Response Rate

A total of 292 questionnaires were administered to pharmaceutical industries in Oyo State, out of which 287 completed questionnaires were found useable, giving a response rate of 98.3%. Figure 2.

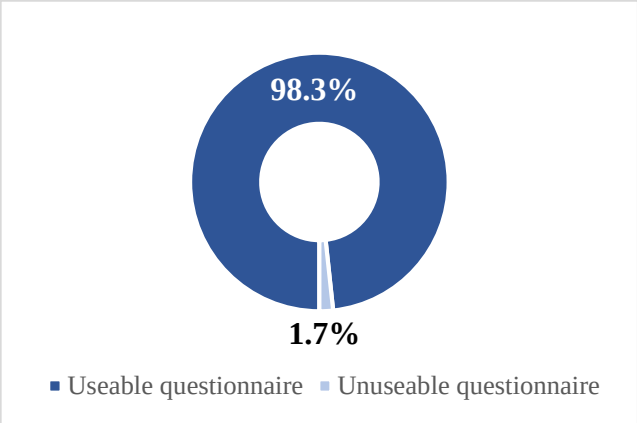

Figure 2: Response Rate

Demographic Characteristics of Respondents

Table 1 present the demographic characteristics of the respondents. The demographic survey on the effect of digital advertisements on consumer behaviour in the pharmaceutical industry in Oyo State, Nigeria, provides a rich profile of the study's participants. This profile is essential for understanding the target audience and tailoring digital marketing strategies effectively.

Table 1: Demographic Information of the Respondents

Variables		Frequency	Percentage
Gender	Male	144	50.2
	Female	143	49.8
Age group	18-28	60	20.9
	29-39	117	40.8
	50-50	62	21.6
	51-61	38	13.2
	Above 61	10	3.5
Educational level	No formal education	3	1.0
	SSCE	7	2.4
	OND/NCE	22	7.7
	HND/BSC	84	29.3
	MSC/BSC	99	34.5
	PHD	72	25.1
Marital status	Single	91	31.7
	Married	168	58.5
	Divorced	19	6.6
	Widow	9	3.1
Income	₦75,000-175,000	52	18.1
	₦180,000-280,000	31	10.8
	₦285,000-385,000	41	14.3
	Above 385,000	163	56.8

Source: Authors' Field Study ( )

Gender Distribution

The sample is almost equally split between genders, with 144 males (50.2%) and 143 females (49.8%). This balanced gender representation is advantageous for the study, as it ensures that the insights gained can be applied broadly to both male and female consumers. It also indicates that digital advertisements should be designed to appeal equally to both genders to maximize their effectiveness.

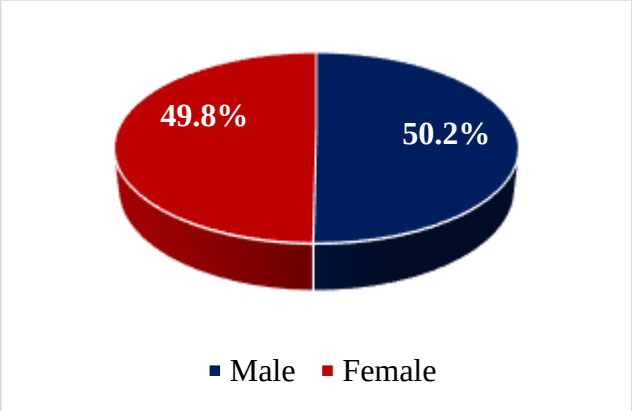

Figure 3: Gender Distribution of Respondents
Source: Authors' Field Study ( )

Age Group Distribution

The age distribution reveals a concentration of participants in the 29-39 age group, comprising 117 individuals (40.8%). This is followed by the 18-28 age group with 60 individuals (20.9%), the 40-50 age group with 62 individuals (21.6%), the 51-61 age group with 38 individuals (13.2%), and those above 61 years with 10 individuals (3.5%). The dominance of younger and middle-aged adults suggests that digital advertisements should be dynamic, engaging, and relevant to these age groups. Younger consumers may be more receptive to interactive and innovative ad formats, such as social media campaigns and influencer endorsements.

Educational Level

A significant portion of the sample has higher educational qualifications, with 99 individuals (34.5%) holding MSc/BSc degrees, 84 individuals (29.3%) with HND/BSc degrees, and 72 individuals (25.1%) possessing PhDs. This high level of educational attainment suggests that the target audience is likely knowledgeable and discerning. Therefore, digital advertisements should be informative, credible, and well-researched to resonate with an educated audience that values detailed and accurate information about pharmaceutical products.

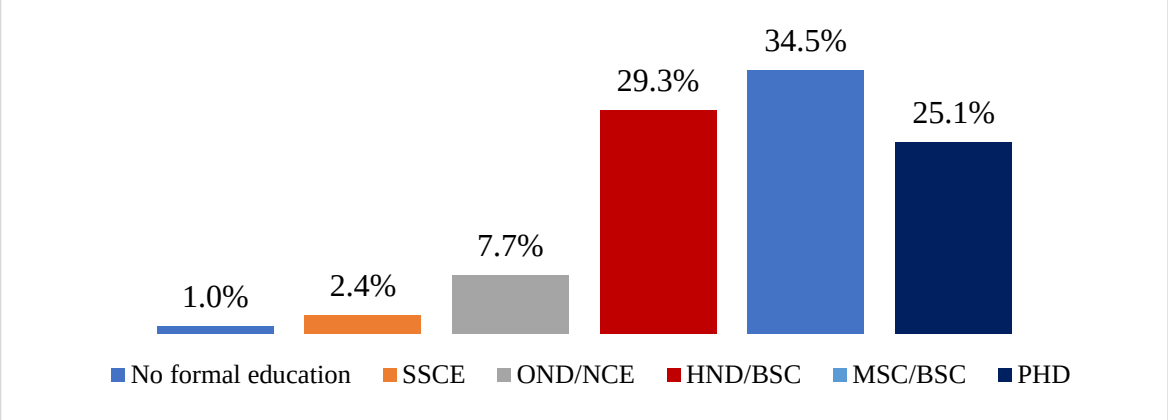

Figure 4: Educational Level of Respondents
Source: Authors' Field Study

Marital Status

The majority of participants are married (168 individuals, 58.5%), followed by single individuals (91, 31.7%), divorced individuals (19, 6.6%), and widows (9, 3.1%). This distribution implies that family-oriented messaging in digital advertisements may be particularly effective. Advertisements could highlight the benefits of pharmaceutical products for family health and well-being, which might appeal to married consumers who are often concerned with the health of their family members.

Income Levels

The income data indicates a significant disparity among respondents, with the majority (163 individuals, 56.8%) earning above 385,000 Naira. Other income groups include 52 individuals (18.1%) earning 75,000-175,000 Naira, 41 individuals (14.3%) earning 285,000-385,000 Naira, and 31 individuals (10.8%) earning 180,000-280,000 Naira. This suggests a relatively affluent population, which has implications for the types of products that should be advertised. Premium and high-quality pharmaceutical products might be more appealing to the higher-income segment,

while affordable and essential medications should be marketed to the lower-income groups to address their needs.

In Oyo State, Nigeria, these demographic insights are crucial for shaping effective digital advertising strategies in the pharmaceutical industry. The balanced gender distribution ensures that advertisements can be designed to cater to both men and women equally. The younger age groups dominate the sample, suggesting that digital marketing efforts should leverage social media platforms, mobile-friendly content, and interactive digital formats to engage this tech-savvy audience effectively. The high level of education among respondents indicates a preference for well-researched and credible information in advertisements. Marketers should emphasize the scientific backing and efficacy of pharmaceutical products to build trust and credibility. Additionally, the predominant marital status being married highlights the importance of family-oriented marketing messages that emphasize the health benefits for the entire family.

The diverse income distribution suggests that digital advertisements should cater to both affluent and less affluent consumers. While premium products can be targeted at higher-income individuals, essential and affordable medications should be marketed to those with lower incomes, ensuring that all segments of the population have access to necessary pharmaceutical products. By understanding these demographic factors, pharmaceutical companies in Oyo State can design more effective digital advertisements that resonate with their target audience, ultimately influencing consumer behaviour positively.

Effect of Digital Advertisement on Consumer Behaviour

The hypothesis that digital advertisement has no significant effect on consumer behaviour within the pharmaceutical industry in Oyo State, Nigeria was tested. The model summary indicates that the correlation coefficient (R) is 0.628, suggesting a moderate positive relationship between digital advertisement and consumer behaviour. The R Square value of 0.395 indicates that approximately 39.5% of the variance in consumer behaviour can be explained by digital advertisement. The adjusted R Square, which accounts for the number of predictors in the model, is 0.393. This close alignment between R Square and adjusted R Square implies that the model is a good fit for the data. The standard error of the estimate is 0.79845, reflecting the average distance that the observed values fall from the regression line. The Durbin-Watson statistic of 2.179 suggests that there is no significant autocorrelation in the residuals, supporting the validity of the regression results.

The ANOVA table reveals that the regression model is statistically significant. The F statistic is 185.986, with a significance level (*Sig*.) of 0.000. This result indicates that the regression model significantly predicts the dependent variable (consumer behaviour), rejecting the null hypothesis that digital advertisement has no effect on consumer behaviour. The sum of squares for regression is 118.570, while the residual sum of squares is 181.693, further confirming the model's explanatory power.

The regression coefficients provide detailed insights into the relationship between digital advertisement and consumer behaviour. The unstandardized coefficient (B) for the constant is 0.616 with a standard error of 0.236, and a t-value of 2.606, which is significant at the 0.01 level. This indicates that when digital advertisement is zero, the baseline level of consumer behaviour is 0.616 units. The unstandardized coefficient for digital advertisement is 0.786, with a standard error of 0.058, resulting in a *t*-value of 13.638. The standardized coefficient (Beta) is 0.628, which is significant at the 0.000 level. This indicates that for every one-unit increase in digital advertisement, consumer behaviour increases by 0.786 units, confirming a significant positive impact of digital advertisement on consumer behaviour.

Hypothesis Testing One

H_{01}: Digital advertisement has no significant effect on consumer behaviour.

The coefficients of the regression model revealed that digital advertisement has a statistically significant positive effect on consumer behaviour ($\beta = 0.628$, $t(285) = 13.638$; $p < 0.001$) (Table 2). Therefore, the alternative hypothesis is accepted. This implies that digital advertisement has a significant effect on consumer behaviour in pharmaceutical industries in Oyo State.

Table 2: Regression Analysis of Consumer Behaviour on Digital Advertisement

Model	B	Sig.	t	Anova (Sig.)	R^2	Adjusted R^2	F (df)
Constant	.616	.000	2.606	.000	.395	.393	185.986(285)
Digital Advert	.628	.000	13.638				

Predictor: (Constant), Digital Advertisement; Dependent variable: Consumer Behaviour

***Sig at 0.05 level*

Effect of Advertisement Content on Consumers' Purchasing Decisions

The model summary indicates a correlation coefficient (R) of 0.534, suggesting a moderate positive relationship between advertising content and consumers' purchasing decisions. The R Square value of 0.285 means that 28.5% of the variance in consumers' purchasing decisions can be explained by the advertising content. The adjusted R-squared, which accounts for the number of predictors in the model, is 0.283, indicating that the model provides a reasonable fit for the data. The standard error of the estimate is 0.82047, indicating the average distance that the observed values fall from the regression line. The Durbin-Watson statistic of 1.784 suggests that there is no significant autocorrelation in the residuals, supporting the reliability of the regression results.

The ANOVA Table demonstrates that the regression model is statistically significant. The F statistic is 113.704, with a significance level ($p<0.000$). This result indicates that the regression model significantly predicts the dependent variable consumers' purchasing decisions), leading us to reject the null hypothesis that advertising content has no effect on consumers' purchasing decisions. The regression sum of squares is 76.542, while the residual sum of squares is 191.853, reinforcing the model's explanatory power.

The regression coefficients provided further insight into the relationship between advertising content and consumers' purchasing decisions. The unstandardized coefficient (B) for the constant is 1.473 with a standard error of 0.224, resulting in a t-value of 6.569, which is significant at the 0.000 level. This indicates that when advertising content is zero, the baseline level of consumers' purchasing decisions is 1.473 units. The unstandardized coefficient for advertising content is 0.601, with a standard error of 0.056, resulting in a t-value of 10.663. The standardized coefficient (Beta) is 0.534, which is significant at the 0.000 level. This implies that for every one-unit increase in the quality or effectiveness of advertising content, consumers' purchasing decisions increase by 0.601 units, demonstrating a significant positive impact.

Table 3: Regression Analysis of Consumer Purchasing Decisions on Digital Advertisement Contents

Model	B	Sig.	t	Anova (Sig.)	R^2	Adjusted R^2	F (Df)
Constant	1.473	.000	6.569	.000	.285	.283	113.704(285)
Digital Advert. Content	.534	.000	10.663				

Predictor: (Constant), Digital Advertisement Content; Dependent variable: Consumers' Purchasing Decisions

***Sig at 0.05 level*

Hypothesis Testing Two

H_{02}: Advertising content has no significant effect on consumers' purchasing decisions.

The coefficients of the regression model revealed that digital advertisement contents has a statistically significant positive effect on consumers' purchasing decisions ($\beta = 0.534$, $t(285) = 10.663$; $p < 0.001$) (Table 3). Therefore, the alternative hypothesis is accepted. This implies that digital advertisement content has a significant effect on consumers' purchasing decisions in pharmaceutical industries in Oyo State.

Influence of Social Media Platforms Advert on Consumers' Purchasing Behaviour for Products or Brands Compared to Traditional Media Channels

The model summary shows a correlation coefficient (R) of 0.361, indicating a modest positive relationship between social media advertising and consumers' buying behaviour. The

R Square value of 0.131 suggests that 13.1% of the variance in consumers' buying behaviour can be explained by social media advertising. The adjusted R Square, which adjusts for the number of predictors in the model, is slightly lower at 0.127, indicating that the model has modest explanatory power. The standard error of the estimate is 0.95709, reflecting the average distance that the observed values fall from the regression line. The Durbin-Watson statistic of 1.980 suggests that there is no significant autocorrelation in the residuals, supporting the reliability of the regression results.

The ANOVA table revealed that the regression model is statistically significant. The F statistic is 42.790, with a significance level (*Sig.*) of 0.000. This result indicates that the regression model significantly predicts the dependent variable (consumers' buying behaviour), allowing us to reject the null hypothesis that social media advertising has no effect on consumers' buying behaviour. The regression sum of squares is 39.197, while the residual sum of squares is 261.066, further confirming the model's modest but significant explanatory power.

The regression coefficients provided further insights into the relationship between social media advertising and consumers' buying behaviour. The unstandardized coefficient (B) for the constant is 2.046 with a standard error of 0.270, resulting in a *t*-value of 7.569, which is significant at the 0.000 level. This indicates that when social media advertising is zero, the baseline level of consumers' buying behaviour is 2.046 units. The unstandardized coefficient for social media advertising is 0.440, with a standard error of 0.067, resulting in a *t*-value of 6.541. The standardized coefficient (Beta) is 0.361, which is significant at the 0.000 level. This implies that for every one-unit increase in social media advertising, consumers' buying behaviour increases by 0.440 units, demonstrating a significant positive impact.

Table 4: Regression Analysis of Consumers' Buying Behaviour on Social Media Platforms Advertisement

Model	B	Sig.	T	ANOVA (Sig.)	R^2	Adjusted R^2	F (Df)
Constant	2.046	.000	7.569	.000	.131	.127	42.790(285)
Social Media	.361	.000	6.541				

Predictor: (Constant), Social Media Platforms Advertisement; Dependent variable: Consumers' Buying Behaviour
***Sig at 0.05 level*

Hypothesis Testing Three

H_{03}: Social media platforms advert has no significant effects on consumers' buying behaviour.

The coefficients of the regression model reveal that social media platforms advert has a statistically significant positive effect on consumers' buying behaviour ($\beta = .361$, $t(285) = 6.541$ $p < 0.001$) (Table 4). Therefore, the alternative hypothesis is accepted. This implies that social media platforms advert has a significant effect on consumers' buying behaviour in pharmaceutical industries in Oyo State.

Moderating Effect of Cultural Differences on the Link between Digital Advertisement and Consumer Behaviour

Measurement Model

Confirmatory Factor Analysis (CFA) was computed using AMOS to test the measurement models. As part of confirmatory factor analysis, factor loadings were assessed for each item, one item (DA1) on Digital advertising construct, two items (SM1, SM2) on social media construct, one item (PD3) on purchasing decision construct, one item (BB1) on buying behaviour construct, and two items (CD1, CD5) on cultural differences construct were removed due to low loadings (< .50) or due to high standardized residual covariance value greater than 2. The model-fit measures were used to assess the model's overall goodness of fit (CMIN/df, GFI, CFI, TLI, SRMR, an RMSEA) and all values were within their respective common acceptance levels (Ullman, 2001; Hu and Bentler, 1998; Bentler, 1990). The four model (Digital Advertisement, Social media, Cultural difference and consumer behaviour) yielded good for the data: CMIN/df = 1.792, GFI = .909, CFI = .936, TLI = .924, SRMR =.047, and RMSEA =.053 (Table 5).

Table 5: Fit Indices

Fit Indices	Recommended Value	Source(s)	Obtained value
P	Insignificant	Bagozzi and Yi (1988)	.000
CMIN/df	3 – 5	Less than 2 (Ullman, 2001) to 5 (Schumacker & Lomax, 2004)	1.792
GFI	>.90	Hair *et al.* (2010)	.909
CFI	>.90	Bentler (1990)	.936
TLI	>.90	Bentler (1990)	.924
SRMR	<.08	Hu and Bentler (1998)	.047
RMSEA	<.80	Hu and Bentler (1998)	.053

Construct reliability was assessed using cronbach's alpha and composite reliability. Cronbach alpha for each construct in the study was found over the required limited of .70 (Nunnally & Bernstein, 1994). Composite reliabilities ranged from 0.70 to 0.86, above the 0.70 benchmark (Hair *et al.*, 2010). Hence, construct reliability was established for each construct in the study (Table 6)

Convergent validity of scale items was estimated using the Average Variance extracted (Fornell & Larcker, 1981). The average variance extracted values were above the threshold value of 0.50 (Fornell & Larcker, 1981) for only the social media construct. However, since the CR of other constructs was well over the required value, we can conclude that the constructs were valid.

Discriminant validity was assessed using the HTMT ratio; all ratios were less than the required limit of 0.85 (Henseler *et al.*, 2015). Hence, discriminant validity was established. The results of discriminant validity are presented in Table 7

Table 6: Loading, Reliability and Convergent Validity

Items	Loading	Alpha	Composite Reliability	AVE
Digital advertisement		.783	.756	.470
AC4	.607			
AC3	.589			
AC2	.511			
AC1	.501			
DA4	.506			
DA3	.569			
DA1	.588			
Social media		.875	.860	.550
SM7	.660			
SM6	.747			
SM5	.771			
SM4	.789			
SM3	.741			
Cultural difference		.848	.808	.460
CD7	.665			
CD6	.512			
CD4	.807			
CD3	.705			
CD2	.676			
Consumer behaviour		.769	.704	.490
PD2	.536			
PD1	.597			
BB3	.661			
BB1	.644			

Table 7: Discriminant Validity of Constructs

	Digital Advertisement	Social Media	Cultural Differences	Consumer Behaviour
Digital Advertisement				
Social Media	.49			
Cultural Differences	.73	.64		
Consumer Behaviour	.86	.75	.54	

(IBM AMOS ver. 21)

Structural Model

The moderation analysis aimed to investigate whether cultural differences (CD) moderate the relationship between digital advertisement (DA) and consumer behaviour (CB) in the context of Ibadan, Oyo, Nigeria. The results of the analysis are summarized in table 8. The table provides the Beta coefficients, Critical Ratios (C.R), and *p*-values for each examined relationship. The direct effect of digital advertisement on consumer behaviour (CB <--- DA) shows a significant positive relationship with a Beta of 0.955, a C.R of 6.002, and a *p*-value of 0.000. This indicates that digital advertisement significantly influences consumer behaviour in Ibadan, Oyo, Nigeria.

Table 8: Moderation Analysis Summary

Relationship	Beta	C.R	*p*-value
CB <--- DA	.955	6.002	.000
CB <--- CD	.098	1.671	.095
CB<--- C_DA*C_CD	-.036	-.681	.496

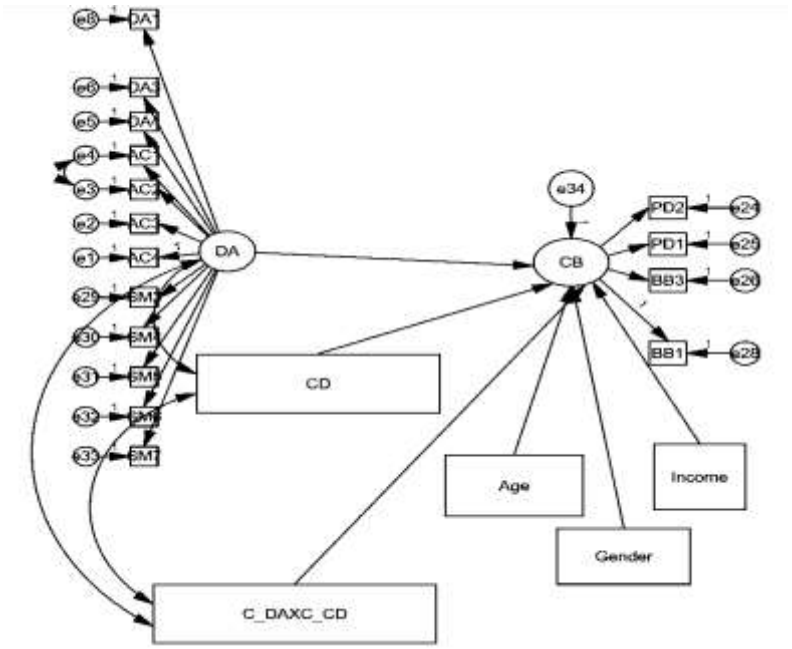

Figure 5: Path Diagram **(**IBM AMOS ver. 21**)** developed from Researcher's Conceptual Framework, 2024

CB: Consumer Behaviour
DA: Digital Advertisement
AC: Advertisement Content
SM: Social Media Ad.
CD: Cultural Differences
PD: Purchasing Decision
BB: Buying Behaviour

Hypothesis Testing Four:

H_{04}: There is no significant relationship between the moderating effect of cultural differences on the link between digital advertisement and consumer behaviour.

The direct effect of cultural differences on consumer behaviour (CB <--- CD) is not statistically significant, as indicated by a Beta of 0.098, a C.R of 1.671, and a *p*-value of 0.095. Although the Beta coefficient suggests a positive relationship, the *p*-value is above the conventional threshold of 0.05, indicating that this relationship is not statistically significant.

Most importantly, the interaction term representing the moderating effect of cultural differences on the relationship between digital advertisement and consumer behaviour, shows a Beta of -0.036, a C.R of -0.681, and a *p*-value of 0.496. This result is not statistically significant, as the *p*-value is well above 0.05. Therefore, cultural differences do not significantly moderate the relationship between digital advertisement and consumer behaviour in this context.

DISCUSSION OF FINDINGS

The findings shows clearly that digital advertisement has a significant effect on consumer behaviour in the pharmaceutical industry in Oyo State. The positive and significant relationship suggested that increased exposure to digital advertisements leads to higher consumer engagement and purchasing behaviour. This result can be attributed to the persuasive power of digital advertisements, which can effectively communicate the benefits of pharmaceutical products, build brand awareness, and influence consumer perceptions and decision-making processes. This finding supports that of Erdem *et al.* (2008) who investigated the impact of digital advertising on consumer price sensitivity in experience goods markets using OLS, and found that advertising is a complement that affects consumer price sensitivity and the willingness to pay for the advertised good. Also, this finding agrees with that of Tarabella *et al.* (2021) who examined the effects of digital advertisements on consumer choices and health using MLE. The result showed that advertisements can be seen to have a significant and positive effect on consumers' choices.

The findings implies that advertising content significantly affects consumers' purchasing decisions in the pharmaceutical industry in Oyo State. The positive and significant relationship suggests that well-crafted advertising content can effectively influence consumers' purchasing behaviours. This result can be attributed to the persuasive nature of engaging and informative advertisements, which can enhance consumer awareness, generate interest, and ultimately lead to purchase decisions. This finding supports that of Sofi *et al.* (2018) who assessed the impact of subliminal advertising on consumer buying behaviour using SEM. The study found that subliminal advertising has paramount significance in determining purchase intentions and compulsive buying tendencies of a young consumer. Also, this finding agrees with that of Pechmann and Catlin (2016) who examined the effects of digital advertising on consumer behaviour using GMM.

The results show that both pro-use product advertising and anti-use public service announcements (PSAs) that are related to health have significant and measurable effects on consumers, altering their beliefs, emotional reactions, information search, and consumption in ways that can either improve or detract from their health and well-being. Similarly, Ioannou *et al.* (2018) explored the impact of digital advertising on behaviour of bank consumers using PLS and that digital advertising has a marginal role in the said decision-making stages but essentially provide insights that open a window of opportunity for financial advertisers to develop effective advertisements. Additionally, Bialkova *et al.* (2016) explored the role of nutrition labels and advertising claims in altering consumers' evaluation and choice. They found that the message displayed front of pack (FOP) altered consumers' evaluation and choice. This finding is line with that of Kaur & Hundal (2015) who studied the impact of advertising strategies on the cognitive and behavioural component of attitude of women consumers using pooled OLS. The study found that consumers consider information provided in the advertisement to be more important because of the pricing element, image of the company and the sexual appeals influencing the consumers more than the other strategies used by the advertisers in the advertisement.

The findings indicated that social media advertising significantly affects consumers' buying behaviour in the pharmaceutical industry in Oyo State. Although the relationship is modest, it is statistically significant, suggesting that social media platforms play an important role in influencing consumer purchasing decisions. This result can be attributed to the widespread use of social media, which provides a platform for engaging and interactive advertisements that can effectively reach and influence a large audience. This finding agrees with that of Dehghani & Tumer (2015) who conducted research on effectiveness of Facebook advertising on enhancing purchase intention of consumers using GMM. The results showed that Facebook advertising significantly affected brand image and brand equity, both of which factors contributed to a significant change in purchasing intention. Similarly, Sriram *et al.* (2021) investigated social media advertisements and their influence on consumer purchase intention using SEM. It was discovered that elements such as attention-grabbing details, celebrity endorsement, and emotional appeal have a considerable impact on customer purchase intention. Weismueller *et al.* (2020) evaluated how advertising disclosure and source credibility affect consumer purchase intention on social media using PLS. The findings revealed that social media influencers and advertising disclosure may be used on social media to effectively increase consumer purchase intention. Additionally, Sharma *et al.* (2021) delved into the impact of SMS Advertising on Consumer Purchase Intention using PLS-SEM. The study suggest that SMS advertising perception has a significant effect on purchase intention, mediated by advertising value and attitude toward SMS advertisement. Also, this finding supports that Rauwers *et al.* (2018) who investigated the influence of Creative Media Advertising on Consumers' affective and behavioural responses and consumers' cognitive responses using SEM. The Results showed that creative media ads not only improve consumers' affective and behavioural responses but also consumers' cognitive responses.

The significant direct effect of advertising on consumer behaviour suggests that advertising is a critical driver of consumer actions and decisions in Ibadan, Oyo, Nigeria. This aligns with the general understanding that advertising is a potent tool in influencing consumer preferences and purchasing behaviour. The strong positive Beta coefficient indicates that well-executed advertising campaigns can significantly boost consumer engagement and sales. On the other hand, the non-significant moderating effect of cultural differences implies that variations in cultural backgrounds among consumers in Ibadan do not significantly alter the influence of advertising on their behaviour. This finding might be as result of cultural diversity within Nigeria. It suggests that, within the context of Ibadan, advertising strategies can be broadly effective across different cultural groups without needing substantial customization to accommodate cultural nuances. This finding disagrees with that of Bailey *et al.* (2016) who assessed green and consumer response to digital advertisement using SEM and found that digital advertisement and green consumption values impact consumer green attitudes even in cultural contexts where there may not be a heightened focus on green marketing, or a high-level awareness of green marketing.

CONCLUSION

The study concluded that digital advertisements play a pivotal role in shaping consumer behaviour in the pharmaceutical sector. The results demonstrate that digital advertisement significantly affects consumer behaviour, with content-rich advertisements positively influencing consumers' purchasing decisions. Also, social media platform advertisements were found to have a substantial impact on consumers' buying behaviour, underscoring the importance of digital marketing strategies in the pharmaceutical industry.

The findings also revealed that cultural differences do not significantly moderate the relationship between advertising and consumer behaviour within the pharmaceutical industry in Oyo State. This implies that digital advertisements, including those on social media platforms, effectively transcend cultural boundaries and uniformly influence consumer behaviour across diverse cultural groups. These insights emphasize the critical role of digital marketing in the pharmaceutical industry, highlighting the necessity for companies to invest in and optimize their digital advertising strategies to enhance consumer engagement and drive purchasing decisions. The results also conclude that while tailoring advertisements to cultural contexts may be

beneficial, the primary focus should be on the quality and effectiveness of the digital content itself to maximize its impact on consumer behaviour.

RECOMMENDATIONS

The following recommendations were proposed to enhance the effectiveness of digital advertisement on consumer behaviour in the pharmaceutical industry in Oyo State based on the study's findings:

1. Investment in High-Quality Digital Advertisements: Pharmaceutical companies should allocate significant resources to the creation and dissemination of high-quality digital advertisements. Given the significant effect of digital advertisements on consumer behaviour, efforts should be made to produce engaging, informative, and visually appealing content that can capture and retain consumer interest.
2. Focus on Content-Rich Advertising: As advertisement content has a significant impact on consumers' purchasing decisions, it is essential for pharmaceutical companies to focus on developing content that provides valuable information about their products. This includes detailed descriptions, usage instructions, benefits, and potential side effects, which can help in building consumer trust and driving purchase decisions.
3. Compare and Integrate Traditional Media Channels: While digital advertisements are crucial, it is also important to integrate them with traditional media channels to maximize reach and impact. Pharmaceutical companies should adopt a multi-channel approach that combines the strengths of both digital and traditional advertising to ensure comprehensive market coverage.
4. Cultural Sensitivity in Advertising: Although cultural differences do not significantly moderate the relationship between advertising and consumer behaviour, it is still beneficial to consider cultural nuances in advertising content. Pharmaceutical companies should strive to create culturally sensitive advertisements that resonate with diverse consumer groups in Oyo State, thereby enhancing relatability and effectiveness.

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