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THE INFLUENCE OF ONLINE REVIEWS ON CONSUMER BEHAVIOR IN JEDDAH, SAUDI ARABIA

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Abstract

This research investigates the influence of online reviews on consumer behavior in Jeddah, Saudi Arabia, using a mixed-methods approach to fill a notable gap in the literature concerning e-WOM (electronic word-of-mouth) in this region. The study is motivated by the need to understand how online reviews, a critical aspect of digital consumer engagement, impact purchasing decisions within a culturally specific context. Through a structured survey of 199 consumers and six in-depth interviews, the research explores the role of trust, credibility, and product-specific factors in shaping consumer behavior. Quantitative data analysis using correlation and regression techniques, reveals that online reviews significantly influence product perception and buying decisions, highlighting the importance of reviewing authenticity and the characteristics of reviewers. The Qualitative insights derived from thematic analysis further elaborate on consumer trust dynamics, emphasizing factors such as review recency, the reputation of the reviewer, and cultural nuances in interpreting reviews. This study contributes to the existing body of knowledge by offering detailed insights into consumer behavior in Jeddah, aligning with broader theoretical models on trust and social proof. The findings provide practical recommendations for enhancing online review systems to improve consumer confidence and decision-making in the Saudi Arabian market.

1. Introduction

In the advent of the digital era, online reviews have become an increasingly influential factor when consumers make purchasing decisions. Various e-commerce businesses have witnessed the power of online reviews in shaping the mindsets and decisions of consumers. It is undeniable that customer product reviews can function as a trust-building mechanism, encouraging or dissuading potential consumers from a product. Online reviews are explicit, publicly accessible testimonials of user experiences, product evaluations, and vendor performance assessments (Vimaladevi and Dhanabhakaym, 2012). The impact of online reviews on consumer behavior has been a scholarly research area for many scholars. It is assumed that the impact of online reviews on the consumers' decision to purchase a product is significant. Therefore, we can argue that the role that the review plays is vital in molding consumers' purchase decisions. If ethically utilized, online reviews present an influential tool that contributes to shaping prosperous e-commerce practices in Saudi Arabia, particularly in Jeddah.

A survey found that approximately 93% of consumers say online reviews could impact their purchasing decisions (Vimaladevi and Dhanabhakaym, 2012). Thus, we can say that online reviews enable consumers to avoid the risks associated with purchasing by minimizing uncertainties and establishing expectations for the product (Kang *et al.* 2022). However, as much as they can inspire trust, online reviews have drawbacks. Issues of trustworthiness and authenticity have arisen, with some businesses manipulating reviews to portray false positive images (Salminen *et al.* 2022). These practices may erode consumer trust, illustrating the precarious nature of online reviews as a mechanism of influence.

This paper aims to investigate consumer behavior through the lens of two primary data collection methods: quantitative surveys mixed with qualitative semi-structured interviews. The goal is to explore how online reviews guide consumers' purchasing decisions in Jeddah, Saudi Arabia, and address the research question, "What is the influence of online reviews on consumer behavior in Jeddah, Saudi Arabia?" The research further delves into how consumers navigate the trustworthiness and authenticity of these reviews.

The research contributes to a deeper understanding of consumer behavior in Jeddah by using mixed-method approaches, qualitative interviews, and quantitative surveys to identify purchasing patterns within the context of online reviews. This understanding can enrich online businesses operating in the region, helping them tailor their marketing strategies accordingly. Employing both qualitative and quantitative data collection methods, the research achieved a holistic understanding of consumer behavior in Jeddah. The use of quantitative data via a survey provided breadth and generalizability, enabling the drawing of broader conclusions and implications for online businesses and academic literature. In contrast, the use of qualitative data via interviews offered in-depth and context-specific insights, allowing for an exploration of individual experiences. Therefore, integrating these two approaches enhances the rigor, validity, and richness of the research findings, ultimately contributing to a more comprehensive understanding of the research topic.

Additionally, this research adds to the academic literature on consumer behavior, particularly within the context of emerging digital markets in Jeddah, Saudi Arabia. This contribution helps fill existing research gaps and serves as a basis for further studies in this area.

2. Literature Review

Previous research has highlighted the growing importance of online reviews in shaping consumer perceptions and purchasing behaviors globally; however, there was a need to specifically

examine the impact of online reviews within the context of Jeddah, Saudi Arabia, considering the distinct Saudi context that may influence how consumers perceive and trust online reviews.

Online reviews have emerged as a prominent source of information shaping consumer decision-making in the digital age; the paper explores the multifaceted influence of online reviews on various aspects of consumer behavior, encompassing purchase intentions, product perceptions, trust formation, and brand engagement, by synthesizing findings from diverse studies, this review aims to elucidate the mechanisms through which online reviews impact consumer behavior and highlight implications for businesses operating in the digital marketplace.

Social Influence Theory by Kelman (1958) can explain how a driven curiosity about external inputs, such as information or communication, can impact individuals' attitudes and lead to attitude change. Kelman's theory explores three distinct processes of social influence: compliance, identification, and internalization. Social Influence Theory investigates how people modify their actions in reaction to the influence or pressure that the individuals of a social group apply; this theory explains how group opinions affect individual purchasing decisions, as well as how, in the Saudi context in Jeddah, community norms affect how these reviews are received.

A popular expectancy-value model of attitude-behavior interactions, another theory of planned behavior (TPB) that has been somewhat successful in forecasting a range of behaviors, was proposed by Ajzen (Ajzen, 1991; Conner and Sparks, 1996; Godin and Kok, 1996), the TPB described the factors that influence a person's choice to engage in a specific behavior by adding perceptions of control over behavior performance as an extra predictor, (Ajzen, 1991). Taking perceptions of control into account is important because they expand the theory's applicability beyond simple, volitional acts to more complex goals and outcomes that require the performance of a complex set of other behaviors.

Moreover, Information systems and technology are developing at a never-before-seen rate and are essential to people's daily lives; in the context of online reviews, (IAM) was proposed in 2005 by Wixom and Todd (2005) (IAM) which can help analyze how the quality and credibility of the information (reviews) influence consumers' acceptance and subsequent behavior, including the critical role of perceived usefulness and ease of understanding of the reviews. It provides a framework for understanding how consumers process information and decide whether to accept or reject it. Understanding the influential factors that affect potential consumers' information adoption processes is crucial. Thus, companies can use these factors to promote their products or services online. (Wixom and Todd, 2005).

2.1. Online reviews and consumer purchasing decisions

Zhong-Gang *et al.* (2015) found that approximately 60% of consumers browse online product reviews weekly, with 93% believing that these reviews enhance purchase decision accuracy and shopping options, while Vimaladevi and Dhanabhakaym (2012) reported that 93% of consumers rely on online reviews to influence their shopping choices, indicating a widespread reliance on and regular consumption of online reviews. Zhong-Gang *et al.* (2015) and Vimaladevi and Dhanabhakaym (2012) both report high percentages of consumers relying on online reviews, indicating a widespread reliance on and consumption of online reviews. However, without details on the sample demographics, methodology, and survey questions, it is challenging to ascertain the representativeness and generalizability of these findings. Additionally, the studies do not delve into potential biases or limitations inherent in self-reported survey data, which could influence the accuracy of the reported percentages.

In their study, Chen *et al.* (2022) delved into the impact of online product reviews on consumers' purchasing decisions; their research methodology encompassed the development of a conceptual framework linking online product reviews and purchasing intention while also considering the moderating role of gender and visual attention in comments, an empirical investigation ensued through region of interest (ROI) analysis and behavioral analysis, their findings unveiled a noteworthy trend, consumers exhibited greater attention toward negative comments, particularly evident among female consumers; additionally, a discernible correlation emerged between consumers' visual browsing behavior and their purchase intention; notably, consumers displayed difficulty in discerning false comments. While Chen *et al.* (2022) offer

valuable insights into the impact of online product reviews on consumers' purchasing decisions using eye-tracking methodology, there are some limitations to consider. The study's reliance on eye-tracking technology may overlook other influential factors, such as individual preferences, past experiences, and contextual factors, which could also shape consumers' purchasing decisions. Moreover, the study's focus on gender as a moderating variable warrants further exploration into potential cultural and societal influences on online review consumption and interpretation. However, these studies often lack context-specific insights, particularly in regions like Saudi Arabia, where cultural factors may alter consumer responses to reviews.

Moreover, Online reviews significantly influence consumers' purchase intentions, serving as a form of social proof that validates product quality and utility (Chevalier and Mayzlin, 2006). Positive reviews bolster consumers' confidence in their purchase decisions and stimulate a sense of urgency, prompting them to act swiftly (Lee and Youn, 2009). Conversely, negative reviews can deter purchase intentions by instilling doubt and apprehension regarding product performance and satisfaction (Zhang *et al.* 2014). Furthermore, reviews' volume valence and perceived credibility play crucial roles in shaping consumers' willingness to engage in transactions (Vermeulen & Seegers, 2009). However, most studies do not account for regional differences in how reviews are interpreted and valued.

Based on the above discussion and the gap in the literature, this leads to the development of the first hypothesis, H1: Online Reviews significantly Influence Consumers' Purchasing Decisions in Jeddah, Saudi Arabia.

2.2. The influence of product perceptions on consumers purchasing decisions

Online reviews contribute to the formation of product perceptions, influencing consumers' attitudes, beliefs, and preferences (Luo *et al.* 2013). Positive reviews enhance product evaluations and foster favorable perceptions, elevating the perceived value and desirability of offerings (Sen and Lerman, 2007). Moreover, reviews that provide detailed information and personal anecdotes contribute to a richer understanding of product attributes and benefits, facilitating more informed purchase decisions (Dellarocas *et al.* 2007). Conversely, negative reviews may undermine product perceptions, highlighting shortcomings and drawbacks that diminish perceived value and appeal.

Previously viewed studies mainly focused on the generalizations of the findings without much consideration of the unique socio-cultural dynamics, which might limit the applicability of the findings to regions like Saudi Arabia or other regions where cultural norms heavily influence consumer behavior; in addition, many studies focused on the content of reviews (positive vs. negative) without an adequate exploration to the context in which these reviews are consumed, moreover, factors such as the review platform, and the reviewer's identity, all influence how reviews are perceived and their impact on product perceptions.

This leads to the development of the second hypothesis, H2: Product Perceptions significantly influence Consumers' Online Purchasing Decisions in Jeddah, Saudi Arabia.

2.3. Role in trust formation

Online reviews play a crucial role in trust formation between consumers and businesses, serving as signals of reliability, authenticity, and transparency (Yoo *et al.* 2013). Positive reviews contribute to the development of trust by reinforcing perceptions of brand credibility and customer satisfaction (Cheung and Thadani, 2012a). Moreover, a diverse range of reviews provides a more balanced and realistic portrayal of the product or service (Sparks and Browning, 2011). Consumers perceive businesses that openly display customer feedback as more trustworthy and accountable, strengthening their willingness to engage in transactions (Cheung and Lee, 2012b). However, the authenticity and credibility of reviews are paramount, as fabricated or biased reviews can erode trust and undermine the platform's credibility (Lee and Lee, 2009). Thus, efforts to combat fake reviews and maintain transparency are essential for fostering trust in online review systems (Zhang *et al.* 2014). Existing research often assumes a universal approach to trust formation without adequately considering regional or cultural variations; this oversight limits the

applicability of findings to diverse markets like Saudi Arabia, where cultural norms and values play a significant role in shaping consumer formation and behavior. Moreover, the studies focused on quantitative methods like surveys. While these methods provide generalized insights, they may not fully capture the depth of consumers' trust-building processes, often influenced by qualitative factors like personal anecdotes, word-of-mouth, and social media interactions.

This leads to developing the third hypothesis, H3: Trust Formation significantly impacts Consumers' Online Purchasing Decisions in Jeddah, Saudi Arabia.

2.4. Saudi Arabian context

Baabdullah and Ansari (2020) investigated the factors influencing online buying behavior among customers in Saudi Arabia, focusing on the implications within the context of the country's evolving e-commerce landscape, utilizing descriptive analysis and a sample of 212 respondents; the study revealed a prevailing positive attitude towards online purchasing, with key determinants including trustworthiness, price, convenience, and customer satisfaction, notably, social influence did not yield significant variations in online buying behavior, the findings underscored the necessity for Saudi online companies to formulate effective marketing and sales strategies to attract more customers to the online market, aligning with the objectives of Saudi Vision 2030.

As discussed above, in the extant literature on online buying behavior in Saudi Arabia, a notable gap exists concerning exploring the impact of online reviews within the Saudi context. At the same time, numerous studies have investigated various factors influencing consumers' online purchasing decisions in Saudi Arabia, such as trust, price, convenience, and customer satisfaction; there remains a dearth of research specifically addressing the role and significance of online reviews; consequently, This gap in the literature presented an opportunity for this paper to address the influence of online reviews on consumer behavior within the distinctive context of Saudi Arabia. Therefore, three hypotheses were developed,

H1: Online Reviews significantly influence consumers' Purchasing Decisions in Jeddah, Saudi Arabia.
H2: Product Perceptions significantly influence Consumers' online Purchasing decisions in Jeddah, Saudi Arabia.
H3: Trust Formation significantly impacts Consumers' Online Purchasing decisions in Jeddah, Saudi Arabia.

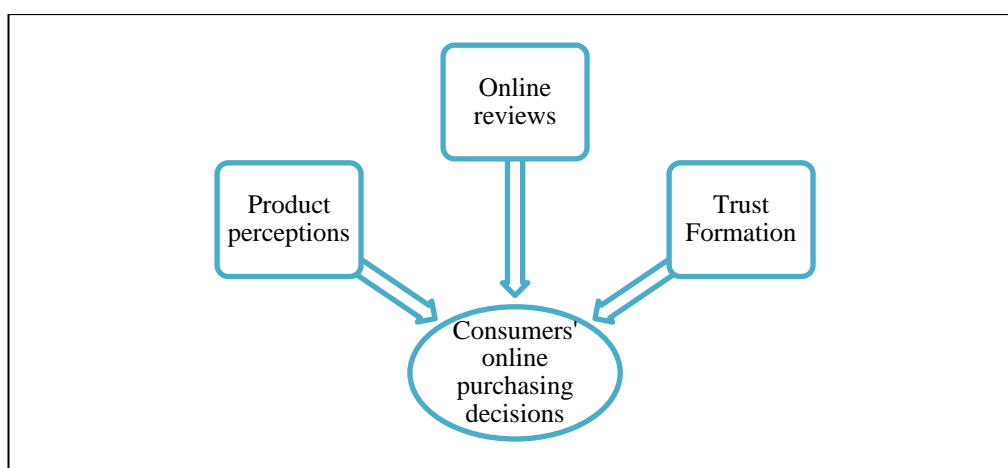The below graph illustrates the conceptual framework that emerged from the study's hypotheses.

Figure 1. The conceptual framework

3. Methodology
3.1. Research Design

This study employed a mixed-methods research design to comprehensively explore how online reviews influence consumer purchasing behavior in Jeddah, Saudi Arabia. The mixed-methods approach combined self-administered questionnaires with semi-structured interviews as the primary data collection method.

First, a self-administered questionnaire survey was employed in this research to gather numerical data on consumer perceptions, preferences, and behaviors related to online reviews, which was used to draw generalizations by administering standardized surveys to a diverse group of participants. On the other hand, to gain insight into how online reviews influence consumer behaviors and opinions.

Semi-structured interviews were also employed, which provided an in-depth exploration of consumer attitudes, behaviors, and opinions via open-ended questions and interactive dialogue, which offered the intricacies of individuals' experiences with online reviews and allowed insight into rich nuances of the consumer's decision-making processes by capturing detailed narratives and personal anecdotes.

Moreover, combining quantitative surveys with qualitative interviews, the mixed-methods approach offered several advantages for understanding how online reviews influence consumer behavior in Jeddah, Saudi Arabia. The research capitalized on each method's strengths while mitigating their limitations. The quantitative component provides breadth and generalizability, while the qualitative component offers depth and context. This combined approach provides a holistic understanding of how online reviews shape consumer behavior and enhances the findings' validity and reliability. By employing both methods, the study could triangulate data, confirm results across different approaches, and validate the consistency of findings. This comprehensive approach illuminated the complex interplay of factors influencing individuals' decision-making processes, allowing researchers to validate results and generate actionable insights for businesses seeking to optimize their online review strategies and enhance consumer satisfaction.

3.2. Sampling method

For this research, two different sampling methods were employed for the semi-structured interviews and the self-administered surveys.

For the quantitative data, a probability sampling method was used, and a random sampling method was employed to draw upon existing lists of Saudi online consumers in Jeddah; this probability method is attributed to its ability to represent the entirety of the population of online consumers in Jeddah, in total, 199 participants participated in the surveys due to the limited time, random sampling helped to minimize bias and ensure the representativeness of the sample, allowing researchers to generalize the findings.

However, the sample for the semi-structured interviews involved purposeful sampling, where participants were selected based on specific criteria relevant to the research objectives; in this case, five individuals who actively engaged with online reviews in Jeddah, Saudi Arabia, were purposefully recruited to participate in the interviews, this method allowed the researchers to target participants who could provide rich insights into the research topic.

3.3. Data collection

The data collection employed in this study involved a process that combined the two methods: semi-structured Self-administered surveys and semi-structured interviews.

For the survey, the utilization of a self-administered structured questionnaire, which was disseminated electronically through a direct hyperlink to the survey via email or online survey platforms, and participants were given a specified time frame to complete it; the link was distributed randomly to the sampled group of fifty participants from the target population of consumers in Jeddah, the survey was designed to quantitatively assess consumer perceptions,

preferences, and behaviors related to online reviews. The survey was distributed electronically via email or online survey platforms like WhatsApp, and participants were given a specified time frame to complete it; the constructs of the questionnaire items were developed to measure the Three items of review influence using a 5 Likert scale that ranges from Strongly Agree to Disagree Strongly; participants were asked to respond to the statements by selecting. 1 strongly disagrees, and 5 strongly agree. Moreover, the constructed questionnaire consisted of five sections of structured questions covering various aspects of online review awareness, including trustworthiness, credibility, and influence on purchase decisions; in total, twenty questions were generated and organized in the three main sections; the first section was for the demographic and identifications questions, section two that consisted of three sub=parts were dedicated for the three independent factors, namely, Online reviews, Product perceptions, and Trust Formation, and the last section was for the dependent variable, the consumers' online purchasing decisions

The first section consisted of three demographic and identification questions that concern elements like age, gender, and the various platforms by which consumers view the reviews. Then section two consisted of three sub-sections for each independent variable; a sub-section was constructed to test the impact of each factor on the consumer purchasing decision; the first factor, the Impact of Online Review, this part contained four questions and was followed by the second part for the second factor, the Influence on Product Perceptions, as such, four questions was generated, the next and last sub-section was a part for the third and last independent factor, the Role in Trust Formation, with three questions organized for this factor, the last main section, section three was designated for the dependent variable the consumer choice based on the above-mentioned factors, and four questions were organized for this factor. The data obtained by the survey was analyzed to test the hypothesized relationship that was developed in the literature.

As for the Interviews, six semi-structured interviews were conducted with participants who were purposefully selected based on their active engagement with online reviews; the interviews were designed to explore participants' attitudes, behaviors, and opinions regarding online reviews on Jeddah, open-ended questions were used to allow participants to express their thoughts and experiences freely, the interviews were conducted face-to-face or remotely via zoom, depending on the participants' preferences, they were audio-recorded with participants' consent to ensure accurate data capture. The interview questions were organized to obtain qualitative data with specifications about the online review, awareness, and usage of the impact of online reviews on purchasing decisions, as well as specifications of the context in Jeddah; moreover, the interviews were organized into two sections, the first section was general included questions about the participants' online shopping habits, frequency of purchase details, and their overall perception of online shopping. The second section contained questions related to participants' viewpoints on the impact of online reviews on their purchasing decisions and the role of trust.

3.4. Data analysis

Several methodological steps were taken to ensure the research's consistency, validity, and overall contribution. First, the data from the self-administered surveys were analyzed in several stages. Initially, the data were downloaded into Excel, recorded, and checked for missing values; no missing values were reported, ensuring data integrity. The data were then analyzed using software like EViews 13 and Microsoft SPSS 22. The analysis began with descriptive statistics to provide an overview of the dataset. Exploratory factor Analysis (EFA) was used to determine this study's underlying factors, which helped identify the key variables influencing consumer behavior. Then regression analysis was applied to explore relationships between variables and test the hypotheses derived from the research objectives, specifically H1: Online reviews significantly influence consumers' online purchasing decisions in Saudi Arabia. H2: Product perceptions significantly influence consumers' online purchasing decisions in Saudi Arabia. H3: Trust formation significantly impacts consumers' online purchasing decisions in Saudi Arabia.

Second, the interviews as the second primary data source, and the data collected from the semi-structured interviews were recorded after the consent from the participants, ensuring confidentiality and that the data would be used for academic purposes; then the data was transcribed and coded to ensure the analysis's accuracy and depth; then, thematic analysis was

utilized to identify recurring patterns, themes, and insights related to online reviews and their impact on consumer behavior. This allowed for identifying commonalities and differences in participants' experiences and perspectives, facilitating a comprehensive understanding of the phenomenon under study.

The integration of the two approaches contributed to a robust and credible study. The rigorous statistical analysis of survey data allowed for the testing of hypotheses and the establishment of generalizable conclusions, while the comprehensive analysis of interview data provided in-depth insights into consumer behavior. These combined methods offered significant contributions to understanding the impact of online reviews on consumer behavior in Saudi Arabia.

3.5. Ethical consideration

Ethical considerations were ensured throughout the research processes, before collecting any data, by seeking ethical approval from the appropriate institutional review board, ensuring that the research adhered to established ethical guidelines and prioritized obtaining informed consent from all participants, emphasizing the importance of their privacy and confidentiality, in addition, participants were assured that their identities would remain anonymous and that their responses would be handled with the utmost care and respect, it was clarified to that participation in the study was voluntary, and participants had the right to withdraw at any time without facing any consequences, the data handling and storage procedures were designed to comply with relevant data protection regulations, underscoring the commitment to safeguarding participants' rights and ensuring the integrity of the research process.

4. Results and discussion

This paper investigated the influence of online reviews on consumer behavior in Jeddah, Saudi Arabia, using a mixed-method approach. The study began with a review of relevant literature to highlight gaps in understanding online reviews' impact in the Saudi context, specifically in Jeddah, and three hypotheses were developed: H1: Online reviews significantly influence consumers' online purchasing decisions in Saudi Arabia; H2: Product perceptions significantly influence consumers' online purchasing decisions in Saudi Arabia; H3: Trust formation significantly impacts consumers' online purchasing decisions in Saudi Arabia.

A quantitative method was employed using an online survey with 199 respondents. The data were downloaded, coded into Excel, and analyzed using SPSS 22 and EViews 13. Descriptive statistics and Explanatory Factor Analysis (EFA) identified key factors, and regression analysis tested the hypotheses.

Qualitative data were collected through semi-structured interviews. The interviews were recorded, transcribed, coded, and analyzed thematically to uncover patterns and insights into online reviews' impact on consumer behavior.The sections below discuss the results of the study.

5.1. Quantitative data analysis

The first primary data source, the quantitative data, was utilized using the questionnaire survey and was analyzed in several stages to test the hypothesized relationship; the process and stages are discussed in the subsequent section.

5.2. Data preparation

The data was collected from the sample of one hundred ninety-nine respondents who participated in the survey, downloaded, and coded into an Excel sheet, and then analyzed with software such as SPSS 22 and EViews 13; no missing values were reported. Moreover, the data was analyzed in several stages.

5.3. Descriptive Statistics and Scale Reliability

Table 1 below presents the descriptive statistics for the key variables examined in this study: consumer choice, the impact of online reviews, the influence of product perception, and the role of trust formation. These statistics provide an initial overview of the data distribution and offer insights into each factor's relative importance and variability. No missing data was reported, and all 199 responses were valid. The results revealed that the average value of all the variables was almost 4.

Table 1. Descriptive statistics

Statistics				
Items/ components	Consumer Choice	Impact of Online Review	Influence of Product Perception	Role of Trust Formation
Observations	199	199	199	199
Mean	4.18	4.16	4.05	3.74
Median	4.50	4.50	4.25	4.0
Maximum	5.00	5.00	5.00	5.00
Minimum	1.00	1.00	1.25	1.00
Std. Dev.	0.84	0.81	0.87	1.12

The reliability statistics were assessed using Cronbach's Alpha to determine the internal consistency among the scale items. The values obtained were 0.869 for Cronbach's Alpha and 0.8579 for Cronbach's Alpha based on standardized items, indicating that the scale used was dependable and demonstrated high internal consistency.

The scale statistics were assessed as such: The average score across all items on the scale is 16.15, with a variance value of 7.43 and a standard deviation of 2.72, which suggested a moderate variability in the responses.

Table 2. Reliability and scale statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.869	0.879	14
Mean	Variance	Std. Deviation
16.15	7.43	2.72

5.4. Demographic and identifications analysis

Table 3. Gender and age distribution

Gender	Count	Percent	Cumulative Count	Cumulative Percent
Female	101	50.75	101	50.75
Male	98	49.25	199	100
Total	199	100	199	100
Age	Count	Percent	Cumulative Count	Cumulative Percent
20	59	29.65	59	29.65
21-30	66	33.17	125	62.81
31-40	33	16.58	158	79.4
41-50	35	17.59	193	96.98
51	6	3.02	199	100
Total	199	100	199	100

The above tables provide a demographic breakdown of the respondents in the study, including their gender and age distribution. This data could assist in recognizing variations in how various consumer segments respond to and are impacted by online reviews; the tables show the gender distribution of the 199 respondents included in the sample. The data indicates an almost even split, with 50.75% female and 49.25% male participants. This equal representation of genders

allows for a more comprehensive analysis of potential differences in online review influences between male and female consumers.

5.5. Exploratory factor analysis

Exploratory Factor Analysis (EFA) was employed to explore the relationships among variables and to assess how well these variables grouped into factors. This tool is particularly useful for evaluating the fit of variables within specific factors. Additionally, factor analysis was used to determine the optimal number of factors representing the data.

Table 4. KMO and Bartlett's test

KMO and Bartlett's Test		
KMO measure of sampling adequacy		0.738
Bartlett's test of Sphericity	Approx. Chi-Square	234.514
	df	6
	Sig.	<.001

The KMO (Kaiser-Meyer-Olkin) measure of sampling adequacy is 0.738, considered "middling." and indicates that the data is suitable for factor analysis. Bartlett's Test of Sphericity is statistically significant ($p<.001$), suggesting the variables are correlated and appropriate for factor analysis to explore the underlying patterns or factors among the used variables.

Moreover, in this study, a scree plot, accompanied by the total variance table, was used to determine the number of factors; the scree plot method enabled the visual evaluation of the eigenvalues of the factors against their respective factors. As illustrated in the Figure below, the point where the plot levels off signals the optimal number of factors; in this analysis, it became evident that one factor was adequate to explain the observed variance in the data; this suggests that a single factor sufficiently captures the underlying structure of the variables under investigation, moreover, Table 5 presents the total variance explained by the component that explained 58.7% of the total variance in the data, with the eigenvalue for this factor is 2.351. which indicated that the consumer's decision to purchase is explained by the factor (The Influence of Online Review).
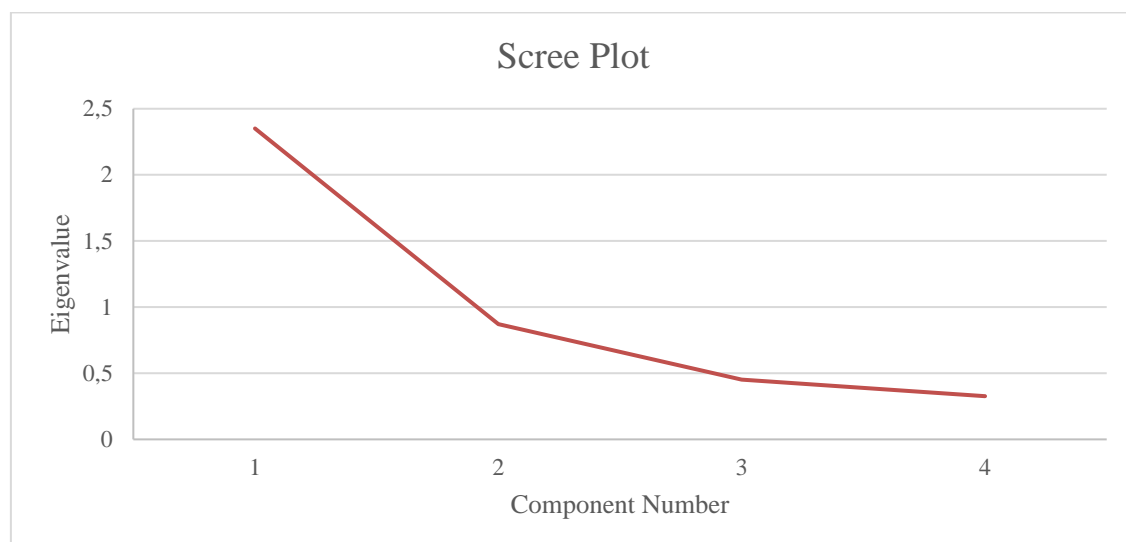

Figure 2. Scree plot

Table 5. Total variance explained

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.351	58.769	58.769	2.351	58.769	58.769
2	0.871	21.78	80.549			
3	0.452	11.288	91.837			
4	0.327	8.163	100			

6. Regression analysis

The final stage of the quantitative data analysis employed the ordinary least squares method (OLS) regression; regression analysis was used to model the relationship between consumers' online purchasing decisions in Jeddah, Saudi Arabia, and the various identified predictors. The regression equation took the form:

Consumers' Online Purchasing Decisions = β0+β1(Online Reviews)+β2 (Product Perceptions)+β3(Trust Formation)+ϵ

Initially, the selected variables were based on relevant literature; then, the formulated hypotheses were developed to evaluate their significance. Specifically, the research investigated whether online reviews, product perceptions, and trust formation significantly influence consumers' online purchasing decisions in Saudi Arabia. Table 6 below represents the regression results using the OLS method.

Table 6. Regression analysis

Dependent Variable: CONSUMER_CHOICE				
Method: Least Squares				
Sample: 1 199				
Included observations: 199				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ONLINE_REVIEW	0.2829	0.0777	3.6428	0.0003
PRODUCT_PERCEPTION	0. 0010	0.0438	0.0223	0.9822
TRUST_FORMATION	0.4069	0.0727	5.5955	0.0000
C	1.3523	0.2699	5.0096	0.0000
R-squared	0.4026	Mean dependent var		4.1847
Adjusted R-squared	0.3935	S.D. dependent var		0.8484
S.E. of regression	0.6608	Akaike info criterion		2.0290
Sum squared resid	85.1381	Schwarz criterion		2.0952
Log likelihood	197.8902	Hannan-Quinn criter.		2. 2.0558
F-statistic	43.8136	Durbin-Watson stat		1. 1.9346

The results of the linear regression analysis indicate that within the sample of Saudi consumers in Jeddah, the variability in their online purchasing decisions is significantly influenced by two factors: the Impact of Online Reviews and Product Perceptions; specifically, the analysis supports hypotheses H1 and H3, while H2, related to Influence of Product Perception, was found to be insignificant and thus not supported. The findings align with the theoretical expectations.

Moreover, the goodness of fit for the model is assessed using two measures: the R^2 and the probability of the F-statistic as presented in the regression output; the R^2 value is 0.4026, suggesting that the selected independent variables can explain approximately 40.3% of the variance in consumers' online purchasing decisions. The remaining 59.7% of the variance might be attributed to other factors not included in this study and to the sample size; additionally, the F-statistic value of 43.81354 with a corresponding p-value of 0.0000 indicates that the model is statistically significant and well-fitted to the data.

The OLS regression model can be represented as follows:

Consumer Choice = 1.352 + 0.283 * (Online Review) + 0.001 * (Product Perception) + 0.407* (Trust Formation)+ϵ

7. Qualitative data analysis

This research explored the impact of online reviews on consumer behavior in Jeddah, Saudi Arabia, to answer the research question, what is the influence of online reviews on consumer behavior in Jeddah, Saudi Arabia?

This study employed a thematic analysis to analyze the interview's data; a qualitative semi-structured interview was used to provide nuanced insights into online consumer behavior in Jeddah, Saudi Arabia, aligned with the quantitative hypothesis, which drew a broad and generalized insight, thematic including the impact of online reviews, influence on product perception, and the role of trust formation. The main objective of employing qualitative data methods is to describe how consumers behave when they read online reviews and how it might influence their decision to purchase a specific product; factors like trustworthiness and high-risk product categories were considered.

The data from the interviews were recorded after the permission of the participants, and the assurance of confidentiality and a confirmation that the data will be used for academic purposes; the six interviews were conducted personally or via Zoom, then the results obtained from the interviews were coded to form first-order codes focusing on the main research topic: the impact of online reviews on consumer behavior. This initial stage involved linking data with first-order codes related to online reviews. Subsequently, common themes emerged from different but interconnected categories developed during open coding, which helped combine first-order codes into more precise second-order themes.

In the second phase, the data was revisited to ensure accuracy in the second-order themes. Existing themes were refined, or new second-order themes were created. For example, first-order coding statements about respondents' frequent reliance on online reviews led to a second-order theme explaining "trust in online reviews." This theme was then defined as "consumer trust," described by first-order coding statements reflecting the reliability of online reviews. This process added precision to the analysis while allowing for better examination and refinement of other evolving concepts, such as "review credibility."

After identifying second-order themes, theoretical dimensions were established to understand the interaction among themes. Some themes represented actual experiences of trust in online reviews (e.g., "reliability of review sources"), while others related to responses to online reviews (e.g., "impact on purchasing decisions"). Multiple models were evaluated to understand how different conceptual models relate to each other, using existing consumer behavior theories when appropriate. Potential models were compared against the data to develop a theoretical framework for the research model; the developed theme was consistent and compliant with the hypothesized relationship developed in the quantitative data.

Table 7 illustrates the key themes and coding identified from the responses below.

Table 7. Key themes and coding identified from the responses

Descriptive Codes	Second-order Themes	Theoretical dimensions
Infrequent Shoppers: Some participants reported shopping online a few times a year, primarily for specific needs	Frequency of Online Shopping	Online Purchasing Habits
Frequent Shoppers: Others indicated regular online shopping multiple times a month, highlighting a higher reliance on e-commerce		
Convenience: Timesaving and ease of access were commonly cited reasons		
Cost-Effectiveness: Participants frequently mentioned finding better deals online compared to in-store shopping	Reasons for Online Shopping	
Availability: A broader selection of products online was a significant motivator		
Consistent Use: Many participants consulted reviews for almost every purchase	Review Consultation Frequency	Awareness of Online Reviews
Selective Use: Some participants referred to reviews only for certain types of products, such as high-value items		
Positive Reviews: Enhance company reputation and encourage potential customers to make a purchase	Impact on Reputation	Role of Reviews in Company Reputation
Negative Reviews: Deter potential customers and can significantly damage a company's reputation		
Reviewer Profile: Trustworthiness was linked to detailed reviewer profiles and perceived authenticity		
Helpfulness Rating: Reviews marked as helpful by other users were deemed more credible	Credibility Factors	
Recency: Recent reviews were considered more reliable than older ones		Online Reviews and Customer Trust
Visual Evidence: Photos of products provided by reviewers enhanced the perceived credibility		
Fake Reviews: Participants identified fake reviews by repetitive language and extreme ratings, which decreased trust	Mistrust of Reviews	
Personal Recommendations: In some cases, personal recommendations were prioritized over online reviews due to perceived reliability		
Electronics and Appliances: Due to complexity and safety concerns, these products relied heavily on reviews		Product-Specific Reliance on Reviews
Skincare and Makeup: Reviews provided insights into product effectiveness and suitability, which were critical for these categories	High-Risk Products	
Clothing: Participants relied on reviews for sizing and quality information		
Stricter Verification: Implementing verification processes to ensure reviews are genuine and accurately reflect real customer experiences	Verification Procedures	Suggestions for Improving Review Credibility in Jeddah
Incentives for Customers: Encouraging a larger number of reviews by offering incentives to customers, thus presenting diverse viewpoints	Encouraging Reviews	

7.1. Interviews analysis

Interview 1: Participant 1 stated that the frequency of online shopping occurs once every few months, driven by time efficiency and cost-effectiveness. They heavily rely on online reviews, particularly from websites, to make informed decisions, prioritizing helpfulness ratings for credibility. Positive reviews significantly influence their perception of a product's quality and brand credibility, especially for electronics purchases. Despite awareness of fake reviews, they haven't encountered any yet. While online reviews are crucial, personal recommendations hold slightly higher importance. The consumer emphasized the importance of encouraging customer reviews to enhance credibility and usefulness, suggesting it could further leverage the impact of online reviews in Jeddah.

Interview 2: Participant 2 reported using online reviews selectively, primarily for skincare products. They have highlighted the importance of recent reviews and detailed reviewer profiles in building trust.

Interview 3**:** Participant 3, an infrequent shopper, uses online reviews mainly for expensive purchases like home appliances. They have pointed out that fake reviews are easily identified by repetitive language and extreme ratings, which decreases her trust.

Interview 4: Participant 4, a frequent online shopper, relies on reviews for almost every purchase. The availability of more options drives this consumer's buying decision. They consult online reviews almost every time, particularly from independent review platforms, valuing good reviews for credibility. Positive reviews significantly shape their perception of a product's quality and brand credibility, while encountering fake reviews has not impacted their trust yet. Online reviews, alongside factors like price and brand reputation, are very important in decision-making. They believe online reviews significantly impact a company's reputation and emphasize the need to encourage more reviews for credibility.

Interview 5: Participant 5 indicated that she prioritizes personal recommendations over online reviews for certain products, such as clothing, due to perceived reliability. This consumer frequently shops online and relies on reviews to assure quality and prevent regrets. Online reviews sometimes shape their perception of product quality and brand credibility, with no encounter of fake reviews impacting trust. They consider online reviews highly important in decision-making yet slightly below personal recommendations. Moreover, they emphasize the importance of qualitative reviews and consider the reviewer's nationality or location when evaluating an online review.

Interview 6: Participant 6 shops online weekly, citing convenience as a primary reason. They frequently consult online reviews, relying on retailer websites and independent review platforms for comprehensive understanding. Objectivity, helpfulness ratings, and recency influence their trust in online reviews, suggesting that stricter verification processes should be implemented to ensure the authenticity of online reviews, thus improving their credibility.

Based on the above responses, key findings based on the developed themes were generated; for instance, for online purchasing habits, consumers in Jeddah exhibit varied online shopping frequencies, citing reasons such as cost-effectiveness, convenience, and a wider product selection. Participants are highly aware of online reviews and tend to consult them before purchasing, primarily relying on independent platforms and retailer websites. Moreover, the participants expressed that the role of reviews in a company's reputation is significantly influential, with positive reviews enhancing it and negative reviews potentially harming it.

Respondents manifested that their trust in online reviews is influenced by factors such as product quality, price, brand reputation, and personal recommendations, with participants expressing skepticism towards potentially false reviews.

Regarding their reliance on specific reviews of the products, they have expressed that for certain products, particularly electronics, appliances, skincare, beauty, and apparel, respondents rely heavily on online reviews for decision-making due to safety and complexity concerns.

Participants also suggest stronger verification procedures to encourage consumer reviews and enhance transparency through detailed, time-stamped, and unbiased reviews. The findings are in accordance with research by Moran *et al.* (2014), who stress the significance of trust and credibility in internet sources of information. Customers express worries about the veracity and possible manipulation of online reviews by critically evaluating them based on user-generated photographs, comprehensive information, and purchase verification. These results demonstrate how e-WOM examples, such as online reviews, contribute to the larger digital impact on consumer behavior. The study's findings align with established theoretical frameworks on consumer behavior and trust in online reviews. Participants' reliance on reviews to make informed purchasing decisions echoes theories of social proof and information asymmetry. Additionally, the emphasis on the credibility and authenticity of reviews supports the notion that consumers seek reliable sources of information to mitigate the risks associated with online shopping. Therefore, our results are consistent with these theoretical models, demonstrating that consumer trust in online reviews is a crucial factor influencing purchasing behavior. While the quantitative data show an overall trend regarding the importance of online reviews compared to other factors like price and brand reputation, the qualitative responses highlight the complexities behind those decisions. Some consumers may prioritize online reviews over other factors. In contrast, others may consider them alongside other sources of information, revealing varying degrees of reliance on online reviews among consumers in Jeddah, ranging from frequent consultation to occasional use. This aligns with the quantitative data indicating a range of frequencies in online shopping habits. The review system enhancements highlight authenticity's importance and incentivize users to contribute to fostering a trustworthy online marketplace. Integrating qualitative and quantitative findings enhanced understanding consumer preferences and behavior in the digital retail landscape.

8. Conclusion

In conclusion, this research began with a thorough review of existing literature on electronic word-of-mouth (e-WOM) and its impact on consumer behavior; a gap in context-specific analyses was identified, particularly within Jeddah, Saudi Arabia. A mixed-methods approach was employed, combining quantitative and qualitative methodologies to capture a comprehensive view of how online reviews influence consumer behavior.

For the quantitative component, a structured survey was distributed to 199 consumers in Jeddah using stratified random sampling to ensure diverse demographic representation. The survey measured online shopping frequency, the importance of online reviews, and the perceived trustworthiness of these reviews using Likert scales. Statistical techniques, including correlation and regression analysis, were applied to assess the impact of online reviews on product perception and trust formation. The findings revealed that the impact of online reviews and product perception significantly influenced consumer purchasing decisions, while trust formation was not supported.

The qualitative component involved six in-depth interviews with a purposive sample of consumers who frequently use online reviews for purchasing decisions. A semi-structured interview guide allowed for flexibility in exploring emerging themes related to online reviews, trust, and consumer behavior. Thematic analysis of the interviews identified recurring themes and patterns, providing nuanced insights into why consumers rely on online reviews and what factors influence their trust in these reviews; the Interview analysis revealed that consumers primarily valued reviews for their perceived authenticity and relevance to specific products.

Integrating the quantitative and qualitative findings, the study offered a comprehensive understanding of the significant influence of online reviews on consumer purchasing decisions in Jeddah, highlighting the critical roles of trust formation and product-specific reliance on peer feedback. This mixed-methods approach enabled a detailed exploration of the complex dynamics underlying online consumer decision-making processes, contributing valuable context-specific

insights to the existing body of knowledge; moreover, the quantitative results affirmed the results from the qualitative analysis, which reinforces the validity of the approach.

9. Recommendations

This study offered several insights to policymakers and e-businesses. The provided reliability and research consistency allowed for several recommendations to be drawn. To enhance the reliability and impact of online reviews on consumer behavior, policymakers should implement several key strategies to establish stringent verification processes for online reviews to ensure their authenticity. This could involve requiring proof of purchase before allowing a review to be posted, thus minimizing the influence of fake reviews. Additionally, encouraging transparency from online retailers regarding their review collection and moderation practices can help build consumer trust.

Policymakers should also consider regulations that promote the clear labelling of sponsored or incentivized reviews. This distinction helps consumers differentiate between genuine customer experiences and marketing efforts, preserving the credibility of online feedback. Moreover, fostering an environment that supports unbiased and comprehensive reviews can be achieved by protecting reviewers from retaliation and ensuring their freedom of expression within legal bounds.

Furthermore, educational initiatives to raise consumer awareness about identifying trustworthy reviews and recognizing potential biases can empower consumers to make more informed purchasing decisions. By promoting digital literacy, policymakers can help consumers navigate the complexities of online reviews more effectively.

Lastly, encouraging collaboration between businesses and consumer protection agencies to monitor and address deceptive review practices can ensure a more transparent and reliable online marketplace.

10. Limitation and future research

Despite the insightful findings, this study has several limitations. Due to time constraints, the sample size for quantitative and qualitative data collection was relatively small, which may not fully capture the diversity of consumer behaviors. Additionally, the study focused on a single geographic location, which limited the generalizability of the results to other regions; therefore, including more regions in the Kingdom will help overcome this shortcoming. The reliance on self-reported data in interviews may introduce bias, as participants might not accurately recall their online shopping habits or be influenced by social desirability. Furthermore, the dynamic nature of e-commerce and online review platforms means that consumer behavior and the impact of reviews may evolve, necessitating ongoing research to keep pace with these changes. Future studies could address these limitations by incorporating larger, more diverse samples and exploring longitudinal data to track changes in consumer behavior and review impact over time.

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