

IMPACT OF ONLINE CUSTOMER REVIEWS ON PERCEIVED SECURITY CONCERNS AND PURCHASE INTENTION OF ONLINE CUSTOMERS

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Abstract

Online shopping has become the most widely accepted way of purchase transactions with exponential increase in online users across the globe. While there are many advantages associated with the online buying, there are certain concerns like privacy, trust, product quality, transaction quality and other types of cyber frauds associated with online buying. The smart technologies such as web seals, website infrastructure, SSL certificates, trust badges and online reviews are used by online firms to manage the information security concerns of online users. It is important for the online sellers to know that how the consumers perceive the feedback given by other consumers. It helps them to assess the usefulness of including this third-party assurance mechanism. Consumers on the other hand are also affected by the online reviews as they are generated by sellers who have used these products. (Zhang, J., Zheng, W. and Wang, S. (2020). PLS SEM is employed to establish relationship between independent and dependent variables. The paper clearly establish the importance of online reviews used by e-commerce companies as an important determinant of trust which help in reducing product quality concerns and transaction concerns of online consumers and stimulating positive purchase intention.

Keywords: Online Reviews, Trust, Product quality, Transaction security, Purchase Intention, endogeneity,

1. Introduction

With rapid increase of e-commerce, the customer concerns of online buyers are also on rise. Almost 93% of online consumers refer to online reviews before making a purchase decision. Filieri R (2015). Information gap which is an adherent part of e-commerce transaction leads to consumer concerns about security of the information shared by them with online sellers. Consumers are constantly findings measures used by online sellers which can assure the regarding the secured and safe use of virtual shopping platforms. Online reviews have become a commonly used method for users to share their experiences of brands, products and e-sellers. (Constantinides, E., & Holleschovsky, N. I. (2016). Online reviews have a valence, meaning they can either be positive or negative. Positive online reviews drive potential consumers towards the desired products and services by creating positive purchase intention. While negative online reviews drift them away as they exert strong influence on consumer attitudes and perceptions. Bettina von Helversen, Katarzyna Abramczuk, Wiesław Kopeć, Radosław Nielek (2018). Online reviews are posted on shopping websites in two formats- rating points that provide comprehensive overview of perceived product quality. These points are trusted as objective parameter to compare different products offered by the consumers.

The present study attempts to address this gap in the customer perception of online reviews. The study is focused on investigating the impact of online reviews on information security concerns of online consumers. The different concerns faced by online consumers identified in prior studies are consumer privacy, trust, Transaction security concerns, product quality concerns, payment related financial concerns, and other cyber security issues such as phishing, hacking etc. Y., & Ha, H. Y. (2022).

2. Literature Review

Online consumer reviews are defined as the assessment of a particular product or service or brand based on actual experience. (Y., & Ha, H. Y. (2022). They are also known by the name electronic word of mouth E-WOM, and are used as recommendations or endorsements made by consumers about their experience with the products bought online . The information is displayed on the product websites or social media sites. They can motivate and discourage the users to use shopping websites for purchase decision making. (Wang, 2019) Online reviews are one of the most commonly used resources used by online consumers to collect the required information about products and services to be purchased from online sellers. (Chatterjee, Sheshadri & Chaudhuri, Ranjan & Vrontis, et al., (2021). Prior studies have observed that online customer reviews form an important part of the information processing, which in turn leads to change in individual attitude. This transformation in attitude is a multi-stage process which include stages- attention, interest, comprehension, acquisition, memory, yielding, retrieval, action and consolidation (Petty & Cacioppo 2005). The information empowers the customers and help in reducing the perceived risks. The platform of online reviews gives consumer an effective medium to communicate (Adler, 2015). Another main advantage associated with online reviews is the

low cost. Moreover, it is participatory at all levels. (Cg-hj: Soyeon Lee, Saerom Lee, HyunmiBaek (Karinovetal.,2011).

Information generated by online sellers is trusted more as compared to the information communicated by the sellers. (Utz et al 2012). Researchers like Park et al 2007, observed that reviews generated by online feedback have a stronger impact on purchase intention. Researchers like Xu and Rao(2015) have empirically supported that quantity and quality of information in online reviews influence their adoption and use in framing product or website related perceptions.

2.1. Online Reviews

Prior studies have identified different factors which relate online reviews with purchase intention of online consumers. For instance, the study conducted by ChuleepornChangchit , Tim Klaus & Ravi Lonkani (2020), has identified two main factors of online reviews perceived usefulness and credibility. Perceived usefulness relates the online reviews in their relevance for finding information about the desired products and services. Credibility of online factors is related to the genuineness of their origin. (Sardar,A., et al(2021).) Two types of characteristics associated with online reviews are credibility features, which include qualitative reviews, quantitative numbers, these features are displayed according to the relevance of reviews for consumers. Consumers use online reviews to reduce uncertainty about online shopping.(Constantinides, E., & Holleschovsky, N. I. (2016). Aika Qazi, Karim Bux Shah Syed, et al.,(Volume 58,2016) has suggested review helpfulness as the contributing factor for applying online reviews in shopping websites. It is determined by content, length, concepts per review, semantic information. Another study by (Changchit, C., Klaus, T., & Lonkani, R. (2020) has proposed credibility, perceived usefulness, and importance of online reviews as the main factors of online reviews influencing customer perception. There are many prior researches which have studied the influence of online reviews on purchase intention (Jensen ML, Averbeck JM, Zhang Z, Wright KB 2013, Zhang, J., Zheng, W. and Wang, S. (2020). Sun, X., Han, M., & Feng, J. (2019) states the role of online reviews in making informed purchase decision by online buyers. Proposes the uses and methods of identifying and classifying reviews that are helpful for customers for different product types. Two types of products are incorporated for the study- search products and experience products. Interaction with online review platforms is considered as an important part of the customer engagement process. Li,Rong & Kim, JaeJon& Park, JaeSung. (2007). The customer satisfaction has also been related to negative online reviews which are comprised of three variables, individual, collective and comprehensive complaints. Perceived usefulness of online reviews is the main feature associated with online reviews (Xia H, Pan X, An W, Zhang ZJ). Based on the prior studies, six factors are extracted for studying the impact of online reviews for the study- Credibility of online reviews, (Changchit, C., Klaus, T., & Lonkani, R. (2020), Sun, X., Han, M., & Feng, J. (2019), helpfulness of online reviews(Sana Ansari, Sumeet Gupta,(2020), quality and quantity of online reviews,(Chen, Jia & Kou, Gang & Peng, Yi. (2018). Genuineness of online reviews,(Daroch, B., Nagrath, G. and Gupta, A. (2021), perceived usefulness of online reviews,(Sana Ansari, Sumeet Gupta,(2020), The

study contributes another factor to the study of online reviews –information relevance. Online reviews help consumers in comparing different purchase alternatives. Required information varies among consumers depending on their buying needs. Some consumers want to buy good quality products, some want to focus on reputed brand names, while some compare their options on the basis of prices and discount offers. Thus, relevance of information in online reviews is an important factor for exploring the effect of online reviews on customer concerns and purchase intention.

2.2. Customer Security Concerns

Fake online stores, theft of data ware, identity theft, are some of the frauds of online shopping. (Aseri, Abdulah. (2021)). Customer security concerns determine the adoption rate of online shopping. *Trust* is an important determinant which can reduce customer concerns. Behavioural literature includes different dimensions including, intentions, belief and attitude. Trust is an antecedent of individual behavior. In case of customer concerns potential consumers are willing to transact with only trust worthy shopping websites. (Anil Gurung Manjeri K Raja , (2016)). Trust in online shopping websites increase the influence of displayed information on consumers. (Lee, J., Park, D. H., & Han, I. (2011)). On the basis of earlier studies, three factors have been extracted for the study of trust issues- Adoption of fair regulations, competence and institutional trust ,authorised access to personal information (K. Stouthuysen, I. Teunis, E. Reusen, H. Slabbinck, (2017)). One of the perceived risks of online consumers is *a risk of receiving products* which does not meet consumers' expectations, Consumers are skeptical about buying online products as they cannot see and touch products purchase through online medium. Value of the product to be purchased cannot be ascertained leading to perceived product quality concern. Lack of touch, feel of the actual product is the main concern for online consumers. Insufficient product information is a main issue bothering online consumers. (Daroch, B., Nagrath, G. and Gupta, A. (2021)). Among all the defining parameters, three main factors have been extracted to discuss the product quality issues- product quality difference between expected and received products, false or fake products, less product related information, hidden facts about the product use (L. Abdullah, R. Ramli, H. O. Bakodah et al., (2019)).

Transaction security concerns arise due to inability of online sellers to meet customer expectations regarding secured. Transaction security concerns or risks arise due to the fear of unpredictable problems which arise at the time of making payments or sharing confidential information related to financial transactions. (Anil Gurung Manjeri K Raja , (2016)). Product quality concerns and transaction security concerns vary according to websites and e s-sellers. The main aspects of transaction issues considered for the study are –payment issues, product delivery issues, return policies, customer support, complicated user interface and refund policies. (Mohammadreza Mousavizadeh, Dan J. Kim, Rui Chen, (2017))

2.3. Purchase Intention

Purchase intention refers to the consumer willingness to engage in online buying process. The information contained in reviews provides product recommendations for consumers

assisting in intention for decision making process. Consumers place substantial importance on online reviews in affecting their purchase intention.(Zhu, L., Li, H., Wang, F.-K., He, W. and Tian, Z. (2020). Review credibility has been related with purchase intention of online consumers in prior researches as (Thomas, M.-J., Wirtz, B. W., & Weyerer, J. C. (2019),). Filieri R.(2015), and quantity of product reviews affect consumer willingness to engage in consumer purchase intention.(Pooja, K., & Upadhyaya, P. (2022).Review helpfulness is related more with product evaluation than purchase intention(Ying Liu, Jian Jin et al., (2013). There are six main factors of purchase intention which have been included in the study- willingness of consumers to visit a shopping website for their purchase needs,willingness to make actual purchase using online shopping platforms,(Xia, Y., & Ha, H. Y. (2022),use of shopping sites which post genuine online reviews,(Jensen ML, Averbek JM, Zhang Z, Wright KB(2013), use of trustworthy shopping websites,(Chatterjee, Sheshadri et al (2021).). Use of shopping websites which adopts sufficient measures to provide security against customer security concerns.(Sun, X., Han, M., & Feng, J. (2019), use of shopping websites which provide complete transaction security. Purchase intention is independent variable in the study(Fig1),

2.4.Research Model and Research Hypothesis

Based on the literature review and extracted variables, research model is proposed for the present study.(Fig 1)

The model includes online reviews are independent variables. Purchase intention is the dependent variable. Customer Security concerns is the mediating variables in the model. Online reviews impact purchase intention directly as well as indirectly through the impact on information security concerns(trust, product quality and transaction security). Presence of credible and genuine reviews reduce customer security concerns which further influence purchase intention. Theoretical frameworks of S-O-R, likelihood elaboration model support this proposition. Based on the relationship among research variables, following hypothesis are proposed

H1a: Online Reviews affect perceived trust of online consumers

H1b: Online Reviews affect product quality concerns of online consumers

H1c: Online Reviews affect transaction security concerns of online consumers

H2a: Perceived trust of online consumers affect purchase intention

H2b: Product quality concerns of online consumers affect purchase intention

H2c: Transaction Security Concerns of online consumers affect purchase intention

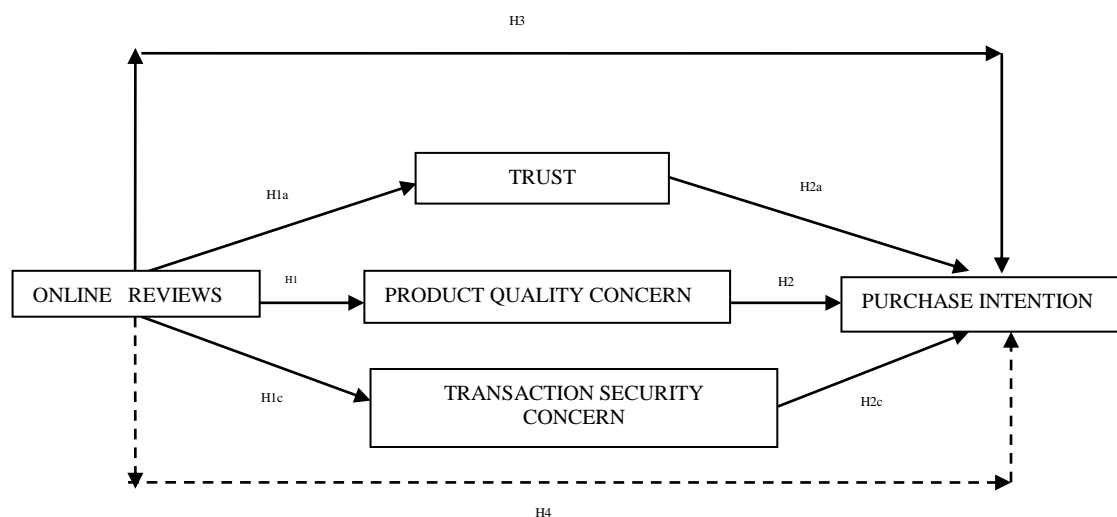
H3: Online Reviews affect purchase intention of online consumers

H4a: Online Reviews affects purchase intention by affecting perceived trust of online consumers

H4b: Online Reviews affects purchase intention by affecting product quality concerns of online consumers

H4c: Online Reviews affects purchase intention by affecting transaction security concerns of online consumers

Following section of research methodology discuss the testing of model and proposed hypothesis by applying appropriate research design and methods,



H3: _____ Direct Effect, H4:-----Indirect Effect

Fig1: Proposed Research Model

3. Research Methodology

The present study is descriptive and exploratory in nature. The proposed research model (Fig 1) is analyzed using PLS 4. Use of PLS SEM is recommended for the PLS is used for analyzing the results because PLS can simultaneously evaluate the measurement and structural model with minimal error variance (Hair et al., 2013). The model establishes and validate the causal relationship between online reviews as independent variables and purchase intention as dependent variable. Customers concerns comprising of three antecedents –trust, product quality concerns and transaction concerns are mediating variables in the model. Demographic variables are control variables in the study.

3.1. Data Collection and Sampling

The findings of the study are based on the primary data collected through Google Forms. A structured questionnaire is used to collect data from individuals above the age of the 18 years who have used shopping websites at least once in last one year make purchase decision. The sample population belongs to five cities of North India, selected on the basis of multistage sampling. Internet penetration in the sampling areas is the main criteria for sample selection. The survey instrument is comprised of five constructs having 25 items; online reviews are the independent variable. Six items have been used to define online reviews for the study. The responses are collected on five point Likert scale. The impact of online reviews on customer trust, product quality and transaction concerns is studied. They form the dependent variable

in the research model. Customer trust made of 5 items, product quality is made of 3 items, and transaction concern is made of 5 items, while purchase intention is made of 6 items. The customer security concerns of trust, product quality and transaction security are the mediating variables in the model influencing the impact of online reviews on purchase intention of online customers. Source of the constructs are discussed in section of literature review

3.2. Data Analysis

The analysis of data is comprised of three main sections-1.Drawing demographic profile of respondents; 2. Testing research model with the help of PLS SEM, which includes establishing validity and reliability of the model with cron bah alpha, composite reliability, AVE, disriminant validity and multicollinearity tests. This is followed by hypothesis testing done through bootstrapping. Further, analysis of mediation effects proposed in the model is done. Finally, Gaussian Copula is applied to check the endogeneity of data and robustness of model.

3.2.1.Demographic Profile

The demographic variables used for the study is segmented into five parts age, gender, education, occupation and geographic location. (Table 3.1.) Most of the respondents 475 are in the age group of 18to 40 years. 68% were males and 48% were found to be post graduate while, 46 % were in private or government service. In terms of location, most of the respondents were from Chandigarh which was followed by Mohali. The detailed demographic analysis is depicted in the Table 3.1

Demographic variables	Parameters	Frequency (%)
Age	Below 30 years	288(45)
	30-40 years	197(31.2)
	40-50 years	85(13.5)
	Above 50 years	46(7.3)
Gender	Male	429(68)
	Female	202(32)
Education Qualification	Senior Secondary or	52(8.2)
	Undergraduate	63(10)
	Graduate	129(20.4)
	Post-graduate or higher	300(47.5)
	Professional	87(13.8)
Occupation Of The Respondents	Service	269(42.6)
	Professional/Self-	71(11.3)
	Retired Employees	69(10.9)
	Student	37(5.9)
	Unemployed	54(8.6)
Geographic Location	Shimla	104(16.5)
	Chandigarh	155(24.6)
	Mohali	122(19.3)
	Gurgaon	112(17.7)
	Delhi	138(21.9)

Table-3.1: Demographic profile
Source: Primary Data

3.2.2. Structural Equation Modelling

PLS is used for analyzing the results because PLS can simultaneously evaluate the measurement and structural model with minimal error variance (Hair et al., 2013). The analysis is done for outer model and inner model. Outer model is evaluated by through factor loadings. The factors loadings for the construct items should be more than 0.70. As evident from the table 3.2. all the values of factor loadings are more than 0.70.

3.2.2.i. Measurement Model Assessment

Evaluation of measurement model includes the reliability and validity of inner order constructs in the model. Reliability of the constructs is determined to ensure the consistency among the variables. To establish the internal consistency reliability of the constructs, composite reliability, rho_A, rho_C and Cronbach's alpha are used. Higher values indicate higher level of reliability. As shown in table IV.3 the Cronbach alpha for 'Online Reviews' is 0.862, 'Product Quality Concern' is 0.728, 'Purchase Intention' is 0.867, 'Trust' is 0.851 and 'Transaction Information Security' is 0.889. Since, all the reliability values between 0.70 and 0.95 which shows that the data is "satisfactory to good" (Hair et al., 2017).

Past literature has suggested to examine composite reliability instead of Cronbach's alpha (Bagozzi and Yi, 1988; Hair et al., 2012). As shown in table 3.2, the composite reliability for 'Online Reviews' is 0.896, 'Purchase Intention' is 0.922, 'Product Quality' is 0.816, 'Policy Statements' is 0.884, 'Security Seals' is 0.891, 'Trust' is 0.9 and 'Transaction Information Security' is 0.916. (Table 3.2) Since, all the values are greater than 0.07 which shows the composite reliability of the data. The values of Henseler's rho_Alpha should lie between Cronbach's alpha and composite reliability respectively (Dijkstra and Henseler, 2015), values in the shown in table 3.2 fulfil this condition. The convergent validity is also calculated to investigate whether the items of each construct have high proportion of shared variance. The AVE values for the constructs are greater than 0.5 as seen from the table 3.2 which indicates convergent validity (Fornell and Larcker, 1981; Marcoulides, 1998).

Construct	Chron Bacha	Rho_C	CR	Ave(extracted)	Construct Items	Factor Loadings
Online Reviews	0.862	0.853	0.896	0.59	OR1	0.829
					OR2	0.757
					OR3	0.716
					OR4	0.798
					OR5	0.747
					OR6	0.758
Product Quality Concern	0.728	0.723	0.816	0.597	PC1	0.733
					PC2	0.742
					PC3	0.769
Purchase	0.867	0.864	0.922	0.601	PI1	0.784
					PI2	0.781
					PI3	0.746
					PI4	0.769
					PI5	0.759

Intention					PI6	0.811
Trust	0.851	0.85	0.9	0.691	T1	0.821
					T2	0.838
					T3	0.851
					T4	0.815
Transaction Security Concern	0.889	0.887	0.916	0.644	TS1	0.768
					TS2	0.781
					TS3	0.801
					TS4	0.79
					TS5	0.784
					TS6	0.887

Table 3.2: Factors Loadings, Reliability Test Scores for Model Constructs
Source: Author's Calculations

3.2.2. ii. Discriminant Validity

Discriminant validity is the extent to which a construct is empirically different from another constructs in the model. Fornell and Larcker criterion and cross loadings are used to establish the discriminant validity. Henseler et al. (2015). Besides, Heterotrait-Monotrait (HTMT) Ratio of correlations to determine the discriminant validity of the constructs.(Henseler et al., 2017). HTMT values should be lower than .85 for constructs that are conceptually different or .90 for those constructs which are conceptually similar. The values of HTMT in table 3.3a and 3.3b fulfil this criterion

Constructs	Online	Product	Purchase	Transaction
Online	0.768			
Privacy	0.571	0.741		
Purchase	0.525	0.548	0.775	
Transaction	0.354	0.331	0.546	0.803
Trust	0.25	0.254	0.477	0.701

Table 3.3a: Fornell Larcker Test

Constructs	Online	Privacy	Purchase	Transaction
Online Reviews				
Privacy Concern	0.695			
Purchase	0.574	0.671		
Transaction	0.386	0.394	0.613	
Trust	0.284	0.312	0.549	0.798

Table 3.3b HTMT Test

3.2.2.iii.Multi-Collinearity check

The problem of multi-collinearity is examined from the VIF values. VIF (Variance Inflation Factor) greater than 10 as an indicator of multicollinearity (Jongh et al. 2015). All the VIF values are less than 3.3 which shows that there is no multi-collinearity problem in the data.

3.2.3. Internal Model Assessment

After completing the measurement model assessment and obtaining satisfactory results, the structural model is evaluated. This model is evaluated to determine the significance of the structural path coefficient with the help of bootstrapping procedure (Hair et al., 2018). The structural model evaluation includes coefficient of determination, cross-validated redundancy measure and path coefficients. The R^2 value ranges from 0 to 1, higher values indicate a greater explanatory power. The R^2 of purchase intention is 0.510 which is substantial and moderate (Henseler et al., 2009; Hair et al., 2011).

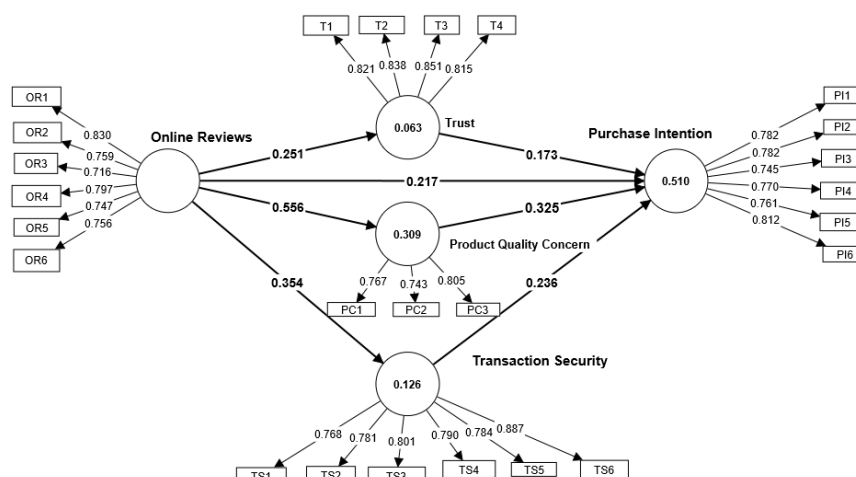


Fig2. SEM

3.2.4. Hypothesis Testing

The research model proposed to study the impact of online reviews on security concerns and purchase intention. The proposed hypotheses were tested using bootstrapping procedure. The bootstrapping technique with 5000 subsamples was used to estimate the proposed relationships. The results of hypothesis testing derived from path analysis are mentioned in (Table 3.4a.). Hypothesis H1a is supported ($\beta=0.293$, $p \leq 0.05$) which shows that there is a significant relationship between online reviews and Trust. The result for hypothesis H1b is supported ($\beta=0.714$, $p \leq 0.05$), which shows that there is significant relationship between online reviews and product quality concerns. The result for hypothesis H1c is supported ($\beta=0.403$, $p \leq 0.05$), which shows that there is significant relationship between online reviews and transaction concerns. The hypothesis H2a, H2b and H2c are also supported as seen from the table 3.4a, establishing significant relationship between customer concerns and purchase intention of online customers. The results of path analysis further prove that significant relationship exist between online reviews and purchase intention as hypothesis (H3).

	Path	Sample mean	Standard deviation	T statistics	Remarks
H1	Online Reviews -> Trust	0.293	0.049	5.897*	Supported

H1b	Online Reviews -> Privacy Quality Concern	0.714	0.033	21.933**	Supported
H1c	Online Reviews -> Transaction Security	0.403	0.043	9.322*	Supported
H2a	Privacy Concern -> Purchase Intention	0.426	0.07	6.03**	Supported
H2b	Transaction Security -> Purchase Intention	0.238	0.079	3.015*	Supported
H2c	Trust -> Purchase Intention	0.184	0.08	2.29**	Supported
H3	Online Reviews -> Purchase Intention	0.149	0.063	2.427*	Supported
Note: ** Results are significant at $P < 0.05$					
Source: Authors Calculations					

Table3.4a Hypothesis Testing

3.2.4.i. Mediation Analysis

Mediation analysis is done in the study to explore the effect of information security concerns (trust, product quality concerns and transaction security concerns) on impact of online reviews and purchase intention of online consumers. According to Mathews et al., (2018) and Sikandar Ali Qalati, Esthela Galvan Vela (2021) the mediation analysis can be partial when direct and indirect impact effects are significant. And mediation is referred as full mediation when direct impact is not significant but indirect effect is significant. As seen from the Table 3.4b, both the direct and indirect impacts are significant, hence information security concerns have partial mediation effect on the impact of structural assurance mechanisms on purchase intention.

Hypothesis		Standardized β	Standard deviation (STDEV)	T statistics	P values	Remarks
H4a	Online Reviews -> Purchase Intention	0.096	0.033	2.884	0.004	Supported
H4b	Online Reviews -> Transaction Security	0.054	0.025	2.09	0.037	Supported
H4c	Online Reviews -> Product quality	0.305	0.054	5.584	0.001	Supported

Table3.4b. Mediation Analysis

Source: Author's Calculations

3.2.5. Assessment of Endogeneity Test using the Gaussian copula approach.

Endogeneity is a limitation of using a regression based method like PLS SEM. (Sarstedt, M., Ringle, et al. (2020). Issue of endogeneity is observed when there is a significant correlation

between estimated construct and error term of endogenous variable (Hult et al., 2018). The predictor construct can explain the error term and related endogenous variables. While there are a number of reasons causing error terms, they are mainly attributed to missed constructs which are correlated with endogenous variables and estimated constructs in PLS model. Gaussian copula method (Park and Gupta, 2012) is applied to deal with the issue of endogeneity in the model. The method is used to check the robustness of the model. (Saari, U. A., Ringle, et al. (2021). The model used in the present study shows the relationship between online reviews, trust, product quality concerns, transaction security concerns with the target construct purchase intention. The main assumption of Gaussian Copula method is non normal distribution of independent variables. The Kolmogorov-Smirnov test with Lilliefors correction and the Shapiro-Wilk test further indicate that online reviews, trust, product quality concerns, transaction security concerns have a non-normal distribution ($p < 0.01$). Thus, the Gaussian Copula method is run on Smart PLS 4 to check the robustness of the model. The table 3.5. Shows the values for Gaussian Copula applied for different models. All the copula terms are non significant at 5% probability indicating that the model is free of any endogeneity issue. Thus, proving that the model is robust.

Test	Construct	Coefficient	p value
Gaussian copula of model 1 (endogenous variables; <i>TRUST</i>)	TRUST	0.173	0.000
	ONLINE REVIEWS	0.253	0.000
	PRODUCT QUALITY	0.282	0.026
	TRANSACTION SECURITY	0.238	0.032
	^cTRUST	0.155	0.627
Gaussian copula of model 2 (endogenous variables; <i>PRODUCT QUALITY</i>)	PRODUCT QUALITY	0.426	0.000
	TRUST	0.172	0.000
	ONLINE REVIEWS	0.573	0.000
	TRANSACTION SECURITY CONCERN	0.249	0.000
	^cPRODUCT QUALITY	0.025	0.808
Gaussian copula of model 3 (endogenous variables; <i>TRANSACTION SECURITY CONCERN</i>)	TRANSACTION SECURITY CONCERN	0.225	0.126
	TRUST	0.173	0.000
	ONLINE REVIEWS	0.357	0.000
	PRODUCT QUALITY	0.294	0.000
	^cTRANSACTION SECURITY CONCERN	0.024	0.979
Gaussian copula of model 4 (endogenous variables; <i>ONLINE REVIEWS</i>)	ONLINE REVIEWS	0.225	0.000
	TRUST	0.173	0.000
	PRODUCT QUALITY	0.294	0.000
	TRANSACTION	0.248	0.000

	SECURITY CONCERN		
	^cONLINE REVIEWS	0.155	0.627
Gaussian copula of model 5 (endogenous variables; <i>ONLINE REVIEWS, TRUST, PRODUCT QUALITY CONCERN</i>)	ONLINE REVIEWS	0.202	0.004
	TRUST	0.253	0.000
	PRODUCT QUALITY	0.282	0.026
	TRANSACTION SECURITY CONCERN	0.257	0.000
	^cONLINE REVIEWS	0.432	0.066
	^cTRUST	0.152	0.628
	^cPRODUCT QUALITY	0.003	0.933
Gaussian copula of model 6 (endogenous variables; <i>TRUST, PRODUCT QUALITY, TRANSACTION SECURITY</i>)	TRUST	0.531	0.030
	PRODUCT QUALITY	0.292	0.000
	TRANSACTION SECURITY CONCERN	0.252	0.000
	ONLINE REVIEWS	0.724	0.071
	^cTRUST	0.283	0.647
	^cPRODUCT QUALITY	0.155	0.627
	^cTRANSACTION SECURITY CONCERN	-0.375	0.338
Gaussian copula of model 7 (endogenous variables; <i>PRODUCT QUALITY, TRANSACTION SECURITY, ONLINE REVIEWS</i>)	PRODUCT QUALITY	0.287	0.000
	TRANSACTION SECURITY CONCERN	0.254	0.000
	ONLINE REVIEWS	0.226	0.000
	TRUST	0.172	0.000
	^cPRODUCT QUALITY	0.025	0.808
	^cTRANSACTION SECURITY CONCERN	0.023	0.973
	^cONLINE REVIEWS	0.431	0.066
Gaussian copula of model 8 (endogenous variables; <i>ONLINE REVIEWS, TRUST, PRODUCT QUALITY, TRANSACTION SECURITY</i>)	ONLINE REVIEWS	0.021	0.000
	TRUST	0.253	0.000
	PRODUCT QUALITY	0.287	0.000
	TRANSACTION SECURITY CONCERN	0.254	0.000
	^cONLINE REVIEWS	0.283	0.647
	^cTRUST	0.531	0.365
	^cPRODUCT QUALITY	0.012	0.865
	^cTRANSACTION SECURITY CONCERN	0.08	0.571
Note: c indicates the copula term in the model.			

Table 3.5. Endogeneity Test with Gaussian Copula

3.3. Findings and Discussion

Findings of the study are consistent with prior studies in term of the effects of online reviews on purchase intention of online consumers. The path analysis explores the indirect effect of online reviews on purchase intention caused through the effect of online reviews on security concerns of online consumers. The results of path analysis of sequential model reveal that online reviews affect trust, perception about product and transaction related risks. Based on the theoretical frameworks including stimulus-organism-response(S-O-R) theory(Zhu, L., Li, H., Wang, F.-K., He, W. and Tian, Z. (2020), elaboration Likelihood theory, Thomas, M.-J., Wirtz, B. W., & Weyerer, J. C. (2019),the study presents a causal research model for online reviews influencing security concerns and purchase intention of online consumers. The findings of the empirical analysis reveal that online reviews associated with high credibility and information quality significantly influence perceived trust. The third party information gains more acceptance and increase consumer trust in online shopping. (Watson F, Wu Y (2022).The experience of using products expressed through online reviews, product ratings and feedback mechanisms further stimulate consumer confidence in buying quality products from shopping websites. Online reviews are useful in reducing the transaction security concerns of online consumers. Credible reviews are helpful in assuring consumers about security of their personal and confidential information. (Qazi, Karim Bux Shah Syed, Ram Gopal Raj, et al.,(2015). Reduced uncertainty increases customer satisfaction; Satisfied consumers are more likely to engage in purchase process with a shopping website. Valence of the reviews i.e whether they are negative or positive is not considered for the study. Presence of online reviews and product ratings affect the willingness of potential consumers to make purchase from that website. (Cg-hj: Soyeon Lee, Saerom Lee, HyunmiBaek(2021). The results of data analysis substantiate the significant effect of trust, product quality concerns and transaction security concerns on purchase intention of online consumers.

Prior studies focus on individual aspects of online reviews. Review credibility has been described as the main describing factor relating online reviews with purchase intention. (Pooja, K., & Upadhyaya, P. (2022).) However, the study adds to the existing research as it consolidates the impact of different defining parameters of online reviews and how they impact behavior of online consumers. Importance and popularity of online reviews is attributed to two main factors first they are sourced from users and secondly they are easy to understand and comprehend. They help consumers in evaluation of specific products to be purchased helping consumers in information processing stage of purchase decision making process. (Li X, Wu C, Mai F.(2019)

3.6. Limitation and Future Scope

The study is limited by many factors. It includes only four determinants of online reviews. There are other factors defining online reviews which can be included in the future. Scope of the study is limited to studying the relationship of online variables with consumer security concerns and purchase intention. Demographic variables are control variables in the study. The moderating impact of demographic variables like age, gender, and qualification on the

research variables can be studied in the future. Consumer security in online shopping is of paramount importance specifically in context of exponential increase in number of online users. Online reviews can be used as an effective tool to increase consumer confidence in virtual shopping process.

3.7. Conclusion

Online reviews play significant role in enhancing customer experience.(Xia, Y., & Ha, H. Y. (2022). Online reviews offer effective alternatives to consumers for physical interaction with a product.(Changchit, C., Klaus, T., & Lonkani, R. (2020). Online consumer reviews can be used as an effective tool for informing potential consumers about the product features and specifications.(Aseri, Abdulah. (2021). Credibility of online reviews is instrumental in influencing purchase intention of online consumers. Consumer perception of online reviews and helpfulness of online reviews helps online vendors in using third party feedback systems as effective marketing strategies.

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