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Perceived Risk and Online Shopping Behavior: Evidence from Karnali Province

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Abstract

The burgeoning popularity of online shopping has not entirely mitigated consumer concerns. A significant segment of the customer base remains apprehensive about apparent risks associated with online transactions. This apprehension can lead to purchase aversion, hindering full participation in the e-commerce landscape. This study investigates the impact of perceived risk on online shopping behavior. In particular, the study investigates the effects of security and privacy risk, product quality and authenticity risk, financial risk, delivery and fulfilment risk and social risk on online shopping behavior. Therefore, the researchers employed an explanatory research design followed by positivist research philosophy. The population of the study was recognized as the entire number of online shoppers in Surkhet. This study adopted survey approach to collect data from a sample of 408 participants selected through convenience sampling. Five hypotheses were formulated and examined using multiple regression analysis with SPSS software. The result showed that security and privacy risk, product quality and authenticity risk, financial risk, delivery and fulfilment risk affects online shopping while social risk were non-significant at 0.05 level of significant. This research offers valuable information for businesses, policymakers, and those involved in the field (practitioners) to create plans (strategies and policies) that tackle concerns (perceived risk factors) people have about online shopping. This could lead to a more positive environment for online shopping use in Karnali Province.

Keywords: online shopping, security and privacy risk, product quality and authenticity risk, financial risk, delivery and fulfilment risk, social risk.

1. Introduction

The advent of the internet and technological advancements have transformed the way consumers engage in shopping activities (Adnan, 2014). Online shopping has gained immense popularity, becoming an integral part of consumers' purchasing behavior (Pal & Kumari, 2023). The growth of e-commerce has revolutionized the retail industry, providing consumers with convenient and accessible platforms to make online purchases (Bhandari, 2023). Online shopping's widespread use is undeniable, but consumers often worry about potential downsides that can affect their purchases (Vos et al., 2014; Kok Wai et al., 2019). Understanding these concerns is essential for businesses to mitigate these concerns and build trust with their online customers (Pappas, 2016).

The internet has transformed shopping, allowing consumers to directly purchase goods from sellers through web browsers (Gnanadhas & Sunitha, 2014). It's like a store in the neighborhood because it sells all kinds of things (Singh & Basu, 2023). Through the internet, consumers can browse, select, and acquire goods and services to fulfill their needs, completing the entire shopping process online (Kok Wai et al., 2019). E-commerce in developing nations like Nepal is experiencing rapid growth, fueled in part by the influence of established online retail giants in neighboring India and China (Devkota et al., 2021). However, despite this surge, mobile app usage for e-commerce transactions remains in its early stages within Nepal.

While the convenience and variety of online shopping are undeniable, consumers often face apprehension due to perceived risks (Lee & Tan, 2003). Perceived risk includes uncertainty about the future outcome of the transaction (Zhang & Yu, 2020). Many researchers have identified various factors that contribute to this perceived risk, acting as potential barriers to online transactions (Laroche et al., 2005; Hassan et al., 2006; Tsai & Yeh, 2010; Masoud, 2013; Aboobucker, 2019; Kok Wai et al., 2019; Ugochukwu & Christian, 2021). These factors include concerns about security and privacy of personal information, doubts about product quality and authenticity, potential financial losses due to fraud or errors, anxieties surrounding delivery and fulfillment issues, and even the social risk of disapproval from peers or family for online shopping choices. While, managing this perceived risk is crucial for attracting more online shoppers. By understanding consumers' risk perceptions, businesses can improve online shopping experiences and foster trust.

Despite the global research on online shopping behavior, a critical knowledge gap exists regarding consumer behavior in developing countries, particularly in remote areas like Nepal's Karnali Province. To address this gap, this study investigates the influence of various perceived risk factors on online shopping behavior in Karnali Province. Building upon existing research, the study examines how security and privacy concerns, product quality and authenticity doubts, financial anxieties, delivery and fulfillment worries, and even social risk of disapproval affect consumers' purchase intentions.

2. Review of literature and Working Hypothesis

This study utilizes multiple theoretical frameworks to examine consumers' online shopping behavior and their perception of risks. The Technology Acceptance Model (TAM) is employed as a research model to understand consumers' acceptance and use of information technology based on their perceived ease of use and usefulness. TAM is used to explore how consumers perceive risks related to product quality and authenticity in online shopping (Silva, 2015). In addition, the Protection Motivation Theory is integrated into the research to examine consumers' perception of risks, particularly security and privacy concerns

associated with online shopping (Shillair, 2020). The Theory of Planned Behavior is also utilized to analyze how attitudes, social norms, and perceived behavioral control interact with risk factors like financial concerns and delivery issues, ultimately affecting purchase intentions (Ajzen, 1991). Furthermore, trust theory is incorporated to investigate the influence of security and privacy risks on consumers' trust in online retailers and platforms. The study recognizes that these risks can erode trust and affect consumers' online shopping behavior (Lee & Turban, 2001). Lastly, the social influence theory is emphasized to understand the role of social interactions and reference groups in shaping consumers' attitudes and behaviors, specifically addressing social risks related to a lack of social interaction and personalized assistance (Kelman, 2006). By integrating these theories, the study underscores the critical association between perceived risk and online shopping.

Perceived Security and Privacy Risk (PSPR): The efficacy of online resources is inherently tied to the secure and private handling of customer data (Janda et al., 2002). Consumers demonstrate a heightened sense of apprehension regarding the security of their personal and financial information during online transactions. The risk of data breaches, identity theft, and unauthorized use of personal information are significant factors impacting consumer trust and willingness to shop online.

Based on this evidence, the present researcher hypothesizes that perceived security and privacy risk and online shopping behavior are interconnected and mutually reinforcing. The working hypothesis can be expressed as follows:

H_1: Perceived security and privacy risk has a significant impact on online shopping

Perceived Product Quality and Authenticity Risk (PPQAR): One key concern for online shoppers is product risk, which refers to the potential for receiving goods or services that fall short of expectations in terms of quality or performance (Kok Wai et al., 2019). This risk encompasses various categories and can differ among consumers (Alreck & Settle, 2002). The inability to physically inspect products before buying online creates uncertainty about quality and authenticity. This uncertainty can lead to concerns about receiving counterfeit or substandard items, ultimately heightening perceived risk.

From this the following hypothesis was proposed:
H_2: Perceived product quality and authenticity risk has a significant impact on online shopping

Perceived Financial Risk (PFR): The possibility of fraudulent activity, unauthorized charges, or payment processing problems creates a sense of financial vulnerability for consumers (Barnes et al., 2007). This risk often arises during the initial stages of online shopping, right after placing an order (Kok Wai et al., 2019). Concerns about the security and reliability of online payment methods can lead consumers to perceive a higher level of financial risk, potentially discouraging them from completing online purchases.

Thus, present researcher strives to establish interconnected and mutually reinforcing association between perceived financial risk and online shopping.
H_3: Perceived financial risk has a significant impact on online shopping

Perceived Delivery and Fulfillment Risk (PDFR): Delivery and fulfillment concerns can be a significant deterrent for online shoppers (Kok Wai et al., 2019). Consumers fear a variety of potential issues, including lost or damaged packages, incorrect delivery addresses, and delays. These concerns can stem from anxieties about the delivery company meeting promised timeframes, the proper handling of goods during transportation, or a lack of effective customer service in case of problems (Zhang & Yu, 2020; Claudia,

2012). For a positive online shopping experience, timely deliveries, order tracking capabilities, and reliable fulfillment processes are essential. Perceived risks associated with these factors, such as delayed deliveries or lost packages, can negatively impact consumers' willingness to shop online.

Based on this evidence, the present researcher hypothesizes that perceived delivery and fulfilment risk significantly affect online shopping behavior.
H_4: Perceived delivery and fulfillment risk has a significant impact on online shopping

Perceived Social Risk (PSR): Social risk in online shopping stems from the fear of disapproval from family or friends, either due to the product itself or the choice of using online shopping channels. This risk can also involve concerns about maintaining social status associated with specific brands or products (Masoud, 2013; Stone & Grønhaug, 1993). Unlike traditional stores, online shopping environments often lack the social interaction and personalized assistance offered by sales associates (Ghuman & Mann, 2018). The absence of personalized recommendations, product guidance, or the ability to consult with salespeople can lead to uncertainty and perceived risk during the online shopping decision-making process.

Thus present researcher established the following alternative hypothesis:
H_5: Perceived social risk has a significant impact on online shopping

3. Research Methodology

This study adopted a quantitative approach grounded in the positivist paradigm. This methodology emphasizes objective measurement and analysis of data, making it suitable for investigating the research questions. In this particular piece of work, drawing on theories such as Protection Motivation Theory, Technology Acceptance Model, Theory of Planned Behavior, Trust Theory, and Social Influence Theory, researchers understand the multifaceted nature of perceived risks and online shopping. Several studies have used these theories into empirical studies for comprehensive understanding of the perceived risk factors and contribute to the development of effective strategies for businesses to address and mitigate these risks, thereby enhancing consumers' online shopping experiences from a positivist perspective.

Similarly, the quantitative approach was chosen for this study because it excels at examining cause-and-effect relationships between variables, such as the independent and dependent variables explored here (Creswell, 2009). This method relies on mathematical, computational, and statistical techniques to establish these relationships. In the context of this research, the goal is to gain deeper insights on how perceived risk factors influence online shopping behavior by employing a quantitative approach.

Data collection for this study was conducted in Birendranagar, the most urbanized and economically significant city in Karnali Province. Convenience sampling was employed to recruit participants who had prior online shopping experience. Following established sample size estimation procedures for infinite populations (Almeda et al., 2010), a target sample size of 384 was determined. However, to ensure sufficient data for robust statistical analysis, data collection continued until 408 responses were obtained. Convenience sampling is a non-probability technique, but the final sample size aligns with sample adequacy requirements based on similar studies in this field. Data collection took place in October 2022.

Data were collected through a self-administered survey questionnaire. The questionnaire consisted of two sections: the first gathered demographic information, and the second used a five-point Likert scale to measure the study variables adapted from established research relevant to this topic (Kok Wai et al., 2019; Ghuman & Mann, 2018). Two main types of statistical analysis were employed: descriptive and inferential. Descriptive statistics was used to summarize the demographic characteristics of the respondents and their

responses. Inferential statistical analysis includes multiple linear regression to test the research hypotheses. This method helped quantify the impact of each independent variable (the five perceived risk factors) on the dependent variable (online shopping behavior). Data analysis was conducted using IBM SPSS software. Prior to the regression analysis, several steps were taken to ensure data quality and model suitability. First, descriptive statistics like measures of central tendency (mean), dispersion (standard deviation), and normality (skewness and kurtosis) were examined. Second, Cronbach's alpha coefficient was measured to assess the internal consistency (reliability) of the measurement scales (Rawat, 2023). A Cronbach's alpha of 0.865 indicated a high level of reliability (Nunnally, 1975). Finally, Pearson's correlation coefficients were used to assess the relationships between the variables before proceeding with the regression analysis.

The regression model is stated as follows:
$OSB = \beta 0 + \beta 1\ PSPR + \beta 2\ PPQAR + \beta 3\ PFR + \beta 4\ PDFR + \beta 5\ PSR$

4. Data Analysis and Findings

The research underwent a comprehensive three-stage analysis. Initially, the focus was on gathering respondents' background information, utilizing frequency tables and percentages to present a detailed overview of the sample's demographic composition. Following this, a descriptive examination of both dependent and independent variables was conducted, employing measures like mean and standard deviation to grasp the central tendencies and variability within the dataset. Subsequently, the analysis delved deeper into exploring the relationships among these variables through multivariate regression analyses. This approach facilitated the identification of nuanced connections between independent variables and the dependent variable, offering valuable insights into the factors influencing the study's outcome.

Characteristics of the Respondents

Structured questionnaires were used to collect demographic characteristics such as age, gender, marital status, education, and occupation from the respondents, providing a comprehensive overview of their demographic profiles in terms of frequency and percentage.

Table 1

Profile of Respondents Based on Personal Characteristics

	Distribution	Frequency (Percentage)
Age	Less than 25 year	159 (38.97)
	26-40 year	219 (53.68)
	41-55 year	29 (7.11)
	Above 56 year	1 (0.24)
Gender	Male	235 (57.59)
	Female	173 (42.41)
Marital Status	Unmarried	186 (45.58)
	Married	222 (54.42)
Education	Up to Secondary	102 (25)
	Graduate	173 (42.4)
	Master and above	133 (32.6)
Occupation	Student	160 (39.21)
	House wife	6 (1.47)
	Employee	230 (56.37)
	Businessman	12 (2.94)

Table 1 presents the demographic characteristics of the survey participants. The largest age group falls between 26 and 40 years old (53.68%), followed by those under 25 (38.97%). Only a small percentage of respondents are between 41 and 55 years old (7.11%) and above 56 years old (1%). In terms of gender, males make up the majority of respondents (57.59%). Regarding education level, the data shows a relatively even distribution with 25% having up to a secondary education, 42.4% holding a graduate degree, and 32.6% with a master's degree or higher. Occupation breakdown reveals that most respondents are employed (56.37%), followed by students (39.21%), with a small number of business owners (2.94%) and housewives (1.47%).

Descriptive Analysis

This section analyzes the combined survey data to assess perceived risk on online shopping behavior. The analysis focuses on evaluating the relative importance of 15 statements related to how perceived risks affect online shopping decisions. Participants rated their level of agreement or disagreement with each statement on a 5-point Likert scale.

Table 2
Perceived risk and Online shopping behavior

Variables	Min.	Max.	Mean	SD	Skewness	Kurtosis
Perceived Security and Privacy Risk (PSPR)						
Data breaches	1.00	5.00	3.81	.97	-.69	-.15
Identity theft	1.00	5.00	3.20	1.10	-.14	-.93
Unauthorized use of personal information	1.00	5.00	3.92	.83	-1.00	1.19
Perceived Product Quality and Authenticity Risk (PPQAR)						
Damaged product	1.00	5.00	4.11	.78	-1.21	2.51
Product quality	1.00	5.00	3.94	.81	-1.00	1.52
Accuracy of product description	1.00	5.00	4.09	.73	-1.11	2.75
Perceived Financial Risk (PFR)						
Fraudulent transactions	1.00	5.00	3.32	1.08	-.34	-.69
Unauthorized charges	1.00	5.00	3.62	1.00	-.68	-.07
Issues with payment processing	1.00	5.00	3.95	.75	-.70	1.11
Perceived Delivery and Fulfillment Risk (PDFR)						
Timely delivery	1.00	5.00	3.59	1.09	-.58	-.64
Order tracking	1.00	5.00	3.36	1.04	-.41	-.74
Reliable fulfillment processes	1.00	5.00	3.60	1.00	-.67	-.11
Perceived Social Risk (PSR)						
Lack of personalized recommendations	1.00	5.00	3.91	.85	-1.01	1.20
Product guidance	1.00	5.00	3.75	.94	-.71	.38
Assistance from sales associates	1.00	5.00	3.67	.87	-.64	.25
Online Shopping Behavior (OSB)						
Online shopping is essential for everyone in the	1.00	5.00	3.61	.94	-.66	.05

technology driven world						
Online shopping makes buyers more active	1.00	5.00	3.80	.88	-.84	.51
Online shopping will become popular in the future	1.00	5.00	3.19	1.14	-.17	-.87

Table 2 summarizes the key characteristics of the data used in the analysis. This includes minimum, maximum, mean, standard deviation, skewness, and kurtosis. The average scores (means) for all variables exceed 3, suggesting a general positive trend in the responses. The skewness values fall within the range (+2, -2), indicating that the data is relatively symmetrical. Similarly, the kurtosis values lie between (+7, -7), suggesting a normal distribution of the data around the mean. These results support the homogeneity of the research sample across all questionnaire dimensions (Curran et al., 1996).

Inferential Analysis

To gain a deeper understanding of the connections between the variables in the survey data, the researcher examined the correlation matrix. Pearson's correlation coefficient (r) was used to measure the direction and strength of linear relationships between PSPR, PPQAR, PFR, PDFR, PSR and OSB. Strength is typically interpreted using a guide by Evans (1996).

Table 3

Correlation Matrix

Constructs	OSB	PSPR	PPQAR	PFR	PDFR	PSR
OSB	1	.560**	.451**	.533**	.505**	.384**
PSPR		1	.517**	.578**	.507**	.410**
PPQAR			1	.426**	.367**	.352**
PFR				1	.458**	.438**
PDFR					1	.437**
PSR						1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 reveals moderate positive and statistically significant correlations (at the 0.01 level) between the various perceived risk dimensions (PSPR, PPQAR, PFR, PDFR). However, the correlation between perceived social risk (PSR) and online shopping behavior (OSB) appears weaker compared to the other relationships.

Finally, to further investigate the influence of these perceived risk factors on online shopping, regression analysis was employed. This statistical technique helps to determine the impact of PSPR, PPQAR, PFR, PDFR, and PSR on OSB.

Table 4

Model Summary of Multivariate regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.661[a]	.438	.431	.5592638	1.893

a. Predictors: (Constant), PSR, PPQAR, PDFR, PFR, PSPR
b. Dependent Variable: OSB

Table 4 shows the results of model summary of multivariate regression analysis. Here, the adjusted R^2 is 0.431. That means 43.1 percent of the change in online shopping behavior is explained by chosen independent variable PSR, PPQAR, PDFR, PFR, PSPR. Likewise, The Durbin-Watson test statistic (DW) is a value between 0 and 4 that measures the degree of autocorrelation in the residuals. A value of 2 or nearly 2 indicates that there is no first-order autocorrelation. The Durbin Watson Coefficient of 1.893 assure no autocorrelation concern here (King, 1981).

Table 5

Analysis of Variance of the Regression Model

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	97.806	5	19.561	62.541	.000b
	Residual	125.736	402	.313		
	Total	223.542	407			

a. Dependent Variable: OSB
b. Predictors: (Constant), PSR, PPQAR, PDFR, PFR, PSPR

The F-statistic from the analysis of variance (ANOVA) conducted on the regression model is 62.541, which is statistically significant ($p < 0.05$). This indicates that the overall regression model is statistically significant, meaning it explains a significant portion of the variance in online shopping behavior.

Table 6

Coefficient of Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.156	.223		.699	.485		
	PSPR	.249	.056	.231	4.487	.000	.527	1.899
	PPQAR	.184	.058	.142	3.164	.002	.691	1.447
	PFR	.230	.051	.219	4.503	.000	.590	1.696
	PDFR	.193	.042	.213	4.621	.000	.657	1.522
	PSR	.057	.050	.050	1.126	.261	.715	1.398

a. Dependent Variable: OSB

Table 6 examines the contribution of PSPR, PPQAR, PFR, PDFR, and PSR to the prediction of OSB. The result revealed that out of five constructs, only four dimensions of perceived risk factors that are PSPR ($\beta = 0.249$; $P < 0.01$), PPQAR ($\beta = 0.184$; $P < 0.01$), PFR ($\beta = 0.230$; $P < 0.01$), and PDFR ($\beta = 0.193$; $P < 0.01$) have found to be significant impact on OSB. However, one construct namely PSR ($\beta = 0.057$; $P > 0.10$) has been found not to be significant.

Table 6 also presents the tolerance and variance inflation factor (VIF) values for each independent variables, i.e., PSPR, PPQAR, PFR, PDFR, and PSR. All values fall within the acceptable range, exceeding 0.2 and remaining below 5. This indicates that multicollinearity, a potential issue in regression analysis, is not a concern for this model.

5. Conclusion and Implication

The perceived risk allied with online shopping significantly influence consumers' behavior and decision-making processes. Security and privacy risk, product quality and authenticity risk, financial risk, and delivery and fulfillment risk have consistently found to impact consumers' online shopping behavior. Businesses should prioritize security measures, establish strong supplier relationships, communicate pricing and policies clearly, and optimize delivery processes.

However, perceived social risk, which encompasses concerns about social judgment or disapproval, have no significant impact on consumers' online shopping behavior. This shows that consumers are generally more concerned about their own personal experiences, security, and satisfaction with the products and services rather than external opinions. While, businesses can still leverage social proof to figure trust and credibility, highlight positive customer reviews and testimonials on websites and social media platforms. Collaborate with influencers or reputable individuals to endorse products and services, further assuring consumers of their quality and authenticity.

By implementing these recommendations, businesses and policymakers can effectively address the perceived risk accompanying with online shopping and foster a favorable environment for online shopping adoption in Karnali Province.

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