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A STUDY ON THE PERCEPTION OF ONLINE CONSUMERS REGARDING RISK AND SATISFACTION

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ABSTRACT

The rapid development of e-commerce has significantly changed consumer purchasing behaviour. Online shopping provides consumers with convenience, time savings, product variety and easy access to information. However, online transactions also involve uncertainty and various forms of perceived risk, including financial risk, privacy risk, security risk, product-performance risk and delivery risk. These risks may influence consumers' confidence, purchase decisions and satisfaction with online shopping. The present study aims to examine the perception of online consumers regarding the risks associated with online shopping and to examine the relationship between perceived risk and consumer satisfaction. The study is based entirely on secondary data obtained from published research papers, academic journals, systematic reviews and other credible academic sources. Previous studies indicate that perceived risk is an important factor in online consumer behaviour and that reducing perceived risk can strengthen consumer confidence and improve the online shopping experience (Phamthi, Nagy, & Ngo, 2024; Handoyo, 2024). The study concludes that online retailers can improve consumer satisfaction by reducing perceived risk through secure payment systems, accurate product information, reliable delivery, transparent policies and effective return and refund procedures.

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1. Introduction:-

The growth of the Internet and digital technologies has transformed the traditional retail environment. Online shopping enables consumers to search for products, compare alternatives, make payments and receive products without physically visiting a store. The increasing availability of smartphones, digital payment systems and e-commerce platforms has further contributed to the expansion of online shopping.

Online shopping provides several benefits, including convenience, accessibility, time savings, product variety and price comparison. However, consumers also face uncertainty because they generally cannot physically examine a product before purchasing it. This uncertainty can create concerns about product quality, payment security, privacy, delivery and after-sales service.

Perceived risk is therefore an important concept in online consumer behaviour. It refers to consumers' perception of uncertainty and the possibility of undesirable consequences associated with purchasing a product or service. In the context of e-commerce, perceived risk can arise from concerns about payment, privacy, product quality, delivery and other aspects of an online transaction (Phamthi, Nagy, & Ngo, 2024). Their systematic review of 133 studies demonstrated that perceived risk remains an important area of research in e-commerce and can influence consumers' responses to online purchasing.

Consumer satisfaction is another important factor in online shopping. Satisfaction reflects the consumer's overall evaluation of the purchasing experience. It may be influenced by product quality, website functionality, payment convenience, delivery performance, customer service and perceived value. Research in the Indian context has found that perceived risk is negatively related to customer satisfaction in online shopping, while website functionality and other positive characteristics of online shopping contribute positively to satisfaction (Tandon, Kiran, & Sah, 2018). Therefore, understanding the perception of consumers regarding online-shopping risks and the relationship between risk and satisfaction is important for e-commerce businesses and researchers.

2. Statement of the Problem:-

The expansion of online shopping has created significant opportunities for consumers and businesses. However, consumers continue to experience uncertainty while purchasing products and services online. Consumers may be concerned about financial loss, fraudulent transactions, misuse of personal information, payment security, product quality, inaccurate product descriptions, delayed delivery and difficulties with returns and refunds.

According to Phamthi, Nagy, and Ngo (2024), perceived risk continues to be an important factor in e-commerce research despite the increasing familiarity of consumers with online shopping. Their systematic review also highlights privacy, security and information-related risks as important areas requiring attention from online retailers. Such risks may influence consumers' confidence and satisfaction with online shopping. Therefore, the present study focuses on examining online consumers' perceptions of risk and the relationship between perceived risk and satisfaction.

3. Objectives of the Study:-

The study is based on the following two objectives:

1. **To examine the perception of online consumers regarding the risks associated with online shopping.**
2. **To examine the relationship between perceived risk and satisfaction among online consumers.**

4. Research Questions

1. What are the major risks perceived by online consumers while shopping online?
2. What relationship exists between perceived risk and satisfaction among online consumers?

5. Hypotheses of the Study:-

H₀- There is **no significant relationship between perceived risk and satisfaction among online consumers.**

H₁- There is a **significant relationship between perceived risk and satisfaction among online consumers.**

Based on previous research, the expected direction of the relationship is negative, meaning that greater perceived risk is generally associated with lower consumer satisfaction.

6. REVIEW OF LITERATURE:-

6.1 Concept of Perceived Risk in Online Shopping

Perceived risk is an important concept in consumer behaviour and refers to the uncertainty and possible negative consequences that consumers associate with a purchase decision. In online shopping, perceived risk becomes more important because consumers generally cannot physically inspect products, interact directly with sellers, or completely evaluate the reliability of the transaction before making payment.

Forsythe and Shi (2003) examined consumer patronage and risk perceptions in Internet shopping and identified several important dimensions of perceived risk, including financial risk, product-performance risk, psychological risk, and time or convenience loss. Their study demonstrated that perceived risks are associated with consumers' Internet shopping behaviour and can influence their willingness to patronize online retailers. Phamthi, Nagy, and Ngo (2024) conducted a systematic review of 133 studies concerning perceived risk and purchase intention in e-commerce. Their review demonstrates that perceived risk continues to be an important

research construct in online consumer behaviour and highlights the importance of privacy, security, information-related concerns, and other forms of uncertainty in e-commerce.

Therefore, perceived risk can be considered a multidimensional construct that includes the possibility of financial loss, privacy violations, security problems, poor product performance, delivery problems, and other negative outcomes.

6.2 Financial Risk

Financial risk refers to the possibility that consumers may lose money or may not receive adequate value from an online purchase. Consumers may be concerned about incorrect charges, fraudulent transactions, hidden costs, or receiving a product that does not justify the amount paid. Alrawad et al. (2023) examined different sources of risk associated with online shopping using structural equation modelling. Their findings indicated that financial risk, information risk, and privacy risk were among the significant risk dimensions affecting customers' purchase decisions. The study also found that previous online shopping experience influenced the relationship between perceived risks and purchase intention.

Tandon, Kiran, and Sah (2016), in their study of online shopping adoption in India, found that perceived risk had a negative relationship with behavioural intention. Their research also considered different facets of perceived risk together with website design and cash-on-delivery as factors affecting online shopping adoption. These findings indicate that financial uncertainty can reduce consumers' confidence in online transactions and may consequently affect their overall evaluation of the online shopping experience.

6.3 Privacy and Security Risk

Privacy and security are among the most frequently discussed concerns in online shopping. Consumers are required to provide personal information, contact details, payment information, and sometimes other sensitive data when completing an online transaction. Concerns regarding unauthorized use of information, data breaches, identity theft, and payment fraud can therefore increase perceived risk. Miyazaki and Fernandez (2001) investigated consumer perceptions of privacy and security risks associated with online shopping. Their research showed that privacy and security are important issues in consumers' online shopping perceptions and examined how these perceptions relate to consumers' Internet shopping activity. Luo et al. (2012) and related research on online privacy have also emphasized that consumers' privacy concerns can influence their willingness to disclose information and participate in online transactions.

Featherman and Pavlou (2003) conceptualized perceived risk in electronic services as a multidimensional construct, emphasizing that uncertainty surrounding electronic transactions can affect consumers' acceptance of online services. Alrawad et al. (2023) further found that information risk and privacy risk were significant factors in customers' online purchase decisions. Similarly, Garbarino and Strahilevitz (2004) examined the relationship between privacy concerns and online purchasing and demonstrated the importance of privacy considerations in consumers' Internet purchasing decisions. These studies suggest that consumers are more likely to feel satisfied and confident when online retailers provide strong payment security, transparent privacy policies, and reliable protection of personal information.

6.4 Product and Performance Risk

Product risk refers to the possibility that the product purchased online may not perform as expected or may differ from the consumer's expectations. This risk is particularly relevant to online shopping because consumers usually cannot physically examine or test products before purchase. Forsythe and Shi (2003) identified product-performance risk as one of the major dimensions of perceived risk in Internet shopping. Pappas (2016) examined perceived risks, marketing strategies, and consumer trust in online buying behaviour. The study found that product-related and web-vendor-related risks are important factors influencing consumer trust and online buying behaviour.

Liu, Burns, and Hou (2013) also examined online shopping risk and consumer decision-making and emphasized that uncertainty concerning product characteristics can influence consumers' evaluations of online purchases. Similarly, Bhatnagar, Misra, and Rao (2000) demonstrated that perceived risks are relevant to consumers' attitudes toward Internet shopping and that different categories of products may generate different levels of perceived risk. Product information therefore plays an important role in reducing uncertainty. Detailed descriptions, accurate photographs, customer reviews, specifications, ratings, and transparent return policies can help consumers form more realistic expectations.

6.5 Website, Vendor and Transaction Risk

Online consumers also evaluate the risk associated with the website and the seller. A poorly designed website, unclear information, unreliable payment system, or lack of customer support can increase uncertainty.

Pappas (2016) found that product and web-vendor risks influence consumer trust and that marketing factors can affect the development of perceived risk in online buying behaviour.

Davari, Iyer, and Rokouzzaman (2016) examined online retail patronage from a perceived-risk perspective. Their findings indicated that product quality, price transparency, and website convenience were positively associated with service quality, while security concerns negatively moderated the relationship between service quality and online retail patronage.

These findings suggest that website quality and vendor reliability are important mechanisms for reducing perceived risk. Consumers are more likely to develop positive evaluations when the website is convenient, transparent, secure, and easy to use.

6.6 Product Intangibility, Privacy and Security Concerns

Online consumers often experience uncertainty because they cannot physically inspect products before purchasing them. This phenomenon is associated with product intangibility and can increase perceived risk. Chiu, Lin, and Tang (2005) and subsequent online shopping research have emphasized the importance of uncertainty in electronic purchasing environments.

More specifically, the study by Lwin, Wirtz, and Williams (2016) on online purchasing and perceived risk demonstrates that consumers' concerns about the online environment can affect their purchase-related evaluations. A particularly relevant study by Crespo, del Bosque, and de los Salmones (2009) examined perceived risk and perceived benefits in online shopping and demonstrated that risk perceptions are important components of consumers' online purchasing decisions.

In addition, a study published in the *Journal of Retailing and Consumer Services* examined how product intangibility, product knowledge, brand familiarity, privacy concerns, and security concerns interact in online shopping. The study found that both mental and physical product intangibility increased perceived risk, while product knowledge reduced perceived risk. It also found that privacy and security concerns increased perceived risk.

This evidence is important because it indicates that consumers' knowledge and familiarity with products can help reduce uncertainty, while privacy and security concerns can increase it.

6.7 Online Customer Experience and Satisfaction

Customer satisfaction represents the consumer's overall evaluation of an online shopping experience. Satisfaction can be influenced by website functionality, product quality, delivery performance, payment convenience, customer service, trust, and the degree to which the actual experience meets consumer expectations.

Tandon, Kiran, and Sah (2018) directly examined the influence of website functionality, online shopping drivers, and perceived risk on customer satisfaction in India. Their findings showed that perceived risk had a negative relationship with customer satisfaction, while website functionality and other positive online shopping drivers were positively associated with satisfaction.

This study is particularly relevant to the present research because it provides direct evidence connecting the two main variables of the proposed study: **perceived risk and customer satisfaction**. Klaus (2013) emphasized the importance of the online customer experience in determining consumers' evaluations of digital services. A positive online experience can improve customer perceptions, whereas problems during purchasing can negatively affect satisfaction.

A study by Rose, Hair, and Clark (2011) also examined online customer experience and emphasized that consumers' cognitive and emotional responses during online shopping can influence important outcomes such as satisfaction and future behavioural intentions.

6.8 Relationship Between Perceived Risk and Satisfaction

The relationship between perceived risk and satisfaction is central to the present study. When consumers perceive that an online purchase is unsafe, uncertain, expensive, unreliable, or unlikely to meet expectations, their evaluation of the shopping experience may become less favourable. Tandon, Kiran, and Sah (2018) found a negative relationship between perceived risk and customer satisfaction in the Indian online shopping context. This means that higher levels of perceived risk were associated with lower levels of customer satisfaction.

Octaviani and Gunawan (2018) examined perceived risk in relation to consumer online shopping behaviour and reported that product risk negatively influenced customer satisfaction and repurchase intention. Their study also found that the effects of different types of perceived risk were not identical, demonstrating the multidimensional nature of risk. Re-examining online customer experience, research published in the *Journal of Retailing and Consumer Services* investigated relationships among online customer experience, perceived risk, trust, satisfaction, and repurchase intention. The study specifically incorporated perceived risk into a model explaining online shopping satisfaction and repurchase behaviour.

More recent research by Phamthi, Nagy, and Ngo (2024), based on a systematic review of 133 studies, confirms the continuing importance of perceived risk in e-commerce research and identifies risk reduction as an important area for future research.

Handoyo (2024), through a meta-analytical study, found that trust, perceived risk, perceived security, and electronic word-of-mouth significantly influence e-commerce purchasing decisions. The study also reported that perceived risk plays an important moderating role in the relationship between trust and e-commerce purchasing decisions. More recent evidence is provided by research published in *Systems* in 2025, which examined consumer trust, return policy, risk perception, and satisfaction in online shopping. The study found that consumer trust can reduce perceived risk and enhance shopping satisfaction, highlighting the importance of trust and risk-management mechanisms in creating positive online shopping experiences.

Overall, the reviewed literature provides substantial support for the argument that perceived risk and satisfaction are negatively associated. However, the strength of this relationship can vary according to the type of risk, consumer experience, product category, website quality, trust, and risk-reduction mechanisms.

6.9 Research Gap

Although a substantial body of research has examined perceived risk in online shopping, several gaps remain.

First, many studies concentrate primarily on **purchase intention or behavioural intention**, rather than directly examining customer satisfaction. The systematic review by Phamthi, Nagy, and Ngo (2024) demonstrates the extensive attention given to perceived risk and purchase intention in e-commerce research.

Second, perceived risk is multidimensional. Financial, privacy, security, product, vendor, delivery, and information risks may affect consumers differently. Alrawad et al. (2023), for example, found significant effects for financial, information, and privacy risk, demonstrating that not all dimensions necessarily have the same influence.

Third, the relationship between perceived risk and satisfaction requires further synthesis because existing studies have been conducted across different countries, product categories, technologies, and consumer groups.

Fourth, the growth of e-commerce has introduced new concerns involving data privacy, cybersecurity, return policies, payment technologies, artificial intelligence, and digital platforms. Therefore, an updated secondary-data analysis can provide a broader understanding of how online consumers perceive risk and how these perceptions are associated with satisfaction.

The present study addresses this gap by systematically reviewing existing academic literature to examine two issues: **(1) the major risks perceived by online consumers and (2) the relationship between perceived risk and satisfaction among online consumers.**

7. Consumer Satisfaction in Online Shopping:-

Consumer satisfaction refers to the consumer's overall evaluation of a product, service or purchasing experience. In online shopping, satisfaction can be influenced by:



Tandon, Kiran, and Sah (2018) examined website functionality, perceived risk and customer satisfaction in online shopping in an emerging economy. Their study found that perceived risk negatively affected customer satisfaction, while website functionality and other positive drivers contributed to satisfaction.

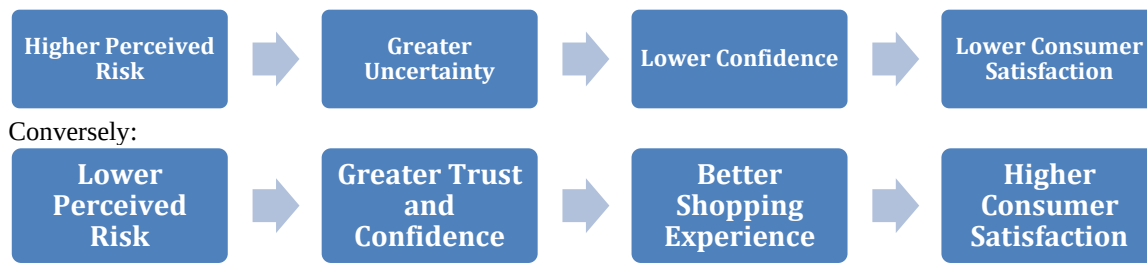
Thus, satisfaction is not determined only by whether the consumer receives the product. Rather, it is influenced by the consumer's evaluation of the complete online shopping experience.

8. Relationship Between Perceived Risk and Satisfaction:-

The relationship between perceived risk and satisfaction is the central relationship examined in this study. When consumers perceive greater risk, they may experience greater uncertainty concerning the outcome of their purchase. This uncertainty can negatively influence their evaluation of the online shopping experience. Tandon, Kiran, and Sah (2018), in their study of online shopping in an emerging economy, found a **negative relationship between perceived risk and customer satisfaction**. This suggests that as consumers' perception of risk increases, their satisfaction with online shopping tends to decrease. Similarly, Phamthi et al. (2024) demonstrate through their systematic review that perceived risk is an important factor influencing consumer responses to e-commerce

and that risk-reduction strategies are important for e-retailers. Handoyo (2024) also found through meta-analysis that perceived risk significantly influences e-commerce purchasing decisions and plays an important role in the relationship between trust and purchasing behaviour.

The relationship can therefore be represented as:



9. Research Methodology

9.1 Research Design:

The present study adopts a **descriptive and analytical research design** based entirely on secondary data. No primary survey or interview has been conducted.

9.2 Nature of Data:

The study uses **secondary data** collected from previously published sources. The major sources include: peer-reviewed journal articles; systematic reviews; meta-analyses; academic books; research reports; and credible academic databases.

9.3 Sources of Secondary Data

The study draws upon research available through academic databases and publishers such as: Wiley Online Library, Science Direct, Springer, INFORMS, PubMed, Google Scholar, Research Gate. The literature was reviewed with particular attention to studies concerning **perceived risk, online shopping and consumer satisfaction**.

9.4 Method of Analysis

The study uses **descriptive and comparative analysis of existing research**. The findings reported by different researchers are compared according to the two objectives of the study. The analysis focuses on:

- Types of online-shopping risks;
- Consumers' perception of these risks;
- Factors affecting consumer satisfaction; and
- The relationship between perceived risk and satisfaction.

10. Analysis and Discussion

10.1 Objective 1: To examine the perception of online consumers regarding the risks associated with online shopping

The secondary literature indicates that online consumers perceive several forms of risk.

Type of Risk	Major Consumer Concern
Financial Risk	Monetary loss, fraudulent transactions and hidden charges
Privacy Risk	Misuse of personal information
Security Risk	Payment and data security
Product Risk	Product not matching expectations
Delivery Risk	Delayed, damaged or incorrect delivery
Transaction Risk	Payment failure and refund problems

Phamthi et al. (2024) found that perceived risk research in e-commerce encompasses several dimensions and that privacy, security and information-related concerns remain important areas of research. Handoyo (2024) also found that perceived risk and perceived security significantly influence consumer decision-making in e-commerce. The study analysed evidence from multiple previous studies and demonstrated the continuing importance of risk management in online transactions. Therefore, the secondary evidence indicates that **online consumers perceive online shopping as involving multiple forms of risk rather than one single type of risk**.

10.2 Objective 2: To examine the relationship between perceived risk and satisfaction among online consumers

The literature indicates a generally negative relationship between perceived risk and consumer satisfaction. Tandon, Kiran, and Sah (2018) specifically examined this relationship and found that perceived risk negatively influences customer satisfaction in online shopping. This means that consumers who perceive online shopping as more risky are likely to evaluate their shopping experience less positively. The finding is also consistent with the broader literature. Phamthi et al. (2024) emphasise the importance of reducing perceived risk in order to improve consumer responses to e-commerce. Handoyo (2024) further demonstrates that perceived risk plays an important role in e-commerce decision-making and that managing risk is important for building consumer trust. Hence, the secondary evidence supports the proposition that **perceived risk and consumer satisfaction are negatively related**.

11. Findings of the Study

Based on the review and analysis of secondary data, the following findings are identified:

Finding 1: Online consumers perceive several types of risk, including financial, privacy, security, product, delivery and transaction risks (Phamthi et al., 2024).

Finding 2: Privacy and security are important concerns because online shopping requires consumers to provide personal and financial information (Phamthi et al., 2024; Handoyo, 2024).

Finding 3: Product-related uncertainty is an important component of perceived risk because consumers cannot physically inspect products before purchasing them.

Finding 4: Delivery and transaction problems can negatively affect consumers' evaluation of online shopping.

Finding 5: Previous research conducted in India found that perceived risk has a **negative relationship with customer satisfaction** (Tandon et al., 2018).

Finding 6: Risk reduction and security measures can help increase consumer confidence in e-commerce (Handoyo, 2024).

Finding 7: Overall, the secondary literature supports the view that **higher perceived risk is generally associated with lower consumer satisfaction**.

12. Suggestions

Based on the findings, online retailers should consider the following measures:

1. Improve payment security: Online retailers should provide secure payment gateways and appropriate authentication systems to reduce financial risk.

2. Protect consumer privacy: Personal and financial information should be protected through effective privacy and data-security measures.

3. Provide accurate product information: Product descriptions, images, specifications and other information should accurately represent the actual product.

4. Improve delivery reliability: Retailers should provide accurate delivery estimates, tracking facilities and effective logistics systems.

5. Simplify return and refund procedures: Easy and transparent return and refund policies can reduce the uncertainty associated with online purchasing.

6. Improve customer service: Effective complaint handling can reduce dissatisfaction when consumers encounter problems.

7. Increase transparency: All prices, taxes, delivery charges and terms should be clearly communicated before consumers complete a purchase.

8. Build consumer trust: As risk and trust are closely related to online purchasing behaviour, retailers should focus on developing trustworthy and transparent online platforms (Handoyo, 2024).

13. Limitations of the Study

1. The study is entirely based on secondary data.
2. No primary data were collected directly from online consumers.
3. The findings depend on the quality and scope of previously published research.
4. Different studies may use different definitions and measurements of perceived risk and satisfaction.
5. Studies conducted in different countries may produce different findings because of cultural and technological differences.
6. Consumer perceptions may change as e-commerce technologies and practices develop.

14. Conclusion

The present study examined the perception of online consumers regarding risk and satisfaction using secondary data. The literature demonstrates that online consumers perceive several forms of risk, particularly financial, privacy, security, product, delivery and transaction-related risks. These risks arise because online consumers must make purchasing decisions with limited physical interaction with the product and seller. The study also examined the relationship between perceived risk and consumer satisfaction. Existing research, particularly evidence from India, indicates that **perceived risk has a negative relationship with customer satisfaction** (Tandon et al., 2018).

Recent systematic-review and meta-analytic evidence further confirms that perceived risk remains an important factor in e-commerce and that effective risk management can strengthen consumer confidence and improve online purchasing outcomes (Phamthi et al.,

2024; Handoyo, 2024). Therefore, online retailers should focus on reducing consumers' perceived risk through secure payment systems, strong privacy protection, accurate product information, reliable delivery, transparent pricing and convenient return and refund policies.

In conclusion, **reducing perceived risk is an important prerequisite for improving consumer confidence and satisfaction in online shopping.**

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