Section A-Research paper

A study on the Adoption Intention of Online Pharmacies in India using modified UTAUT Model

Joy Chatterjee, Research Scholar, Amity Business School, Amity University, Gwalior, Madhya Pradesh

shuvopom@gmail.com

Dr. Sanjeev Saraswat, Assistant Professor, Amity Business School, Amity University, Gwalior, Madhya Pradesh

Sanjeevsaraswat78@gmail.com

Dr. Subhrendu Guha Neogi, Associate Professor, Amity University, Gwalior, Madhya Pradesh

sguhaneogi@gmail.com

Abstract: In recent years, the availability of low-cost, high-speed internet on mobile devices has encouraged people to conduct various activities online, including socializing, conducting business, and shopping. COVID-19 pandemic expedites the development of digital technologies and in the post-COVID era the use of online platforms are increasing day-by-day and in case of online purchase of medicines lots of companies started providing these services in India. Online pharmacies are e-commerce sites that sell medications online. They provide convenience and anonymity and are simple for customers to evaluate prices and product reviews before purchasing medicines. However, they have their limitations, for instance, customers' personal information may be collected, and the website may offer health goods with false claims and unapproved and illegal medicines. To understand the factors that affect consumers' behavioral and purchase intention from online pharmacies by conducting a quantitative study in eastern India. Therefore, this study carried out the exploratory investigation of the factors influencing the adoption intention of consumers to adopt online purchases of Medicines from Online Pharmacies using the modified UTAUT (Unified Theory of Acceptance and Use of Technology) framework. A modified UTAUT model was used to investigate five determinants related to adoption intention: perceived trust, perceived risk, perceived ease of use, performance expectancy, and social influence. A survey method was adopted, wherein a Google Docs questionnaire was distributed among people in West Bengal and 600 survey responses were collected. The responses were statistically analyzed. The adoption intention of online pharmacies was significantly influenced by performance expectancy, perceived ease of use, perceived risk, and perceived trust. Social influence, however, had no significant influence on adoption intention. Our study reveals that performance expectancy, perceived ease of use, and perceived trust motivate people to purchase medicines online, while the perceived risk is a negative influencer of adoption intention. Social influence does not affect people's intention to use online pharmacies.

Keywords: UTAUT Model, online pharmacy, technology adoption, Eastern India, health literacy

1 Introduction

The past few decades of availability of low-cost high-speed internet on mobile devices has encouraged the online accomplishment of several activities such as business meetings, social

interactions, and shopping. While purchase of non-perishable products such as clothes and books has gained a lot of popularity and acquired a large customer base, purchase of perishable products such as medicines still inspires apprehension in a lot of people (Aithal, 2016).

Online pharmacies are e-commerce websites dedicated to selling medicines over the internet. With the advent of e-commerce globally, many online retailers have taken steps to finance, support, and sponsor online pharmacies (Henney, 2001). As early as 1999, websites such as cyberpharmacy.com, planetrx.com, and drugstore.com were established to promote online sales of medicines (Applequist, 1999). The year 2000 saw a merger between CVS Corporation and the online pharmacy (Henney, 2001) and such expansions have continued since then. Online pharmacies have very strict regulations which require them to sell medicines only against a valid prescription. This protects consumers against drug misuse, overdose, and taking an incomplete course of antibiotics. Based on the individual state's verification policy, these sites also verify the prescribing doctor's name, address, telephone number, and other qualifications. They also go through standard licensing procedures for each state in which they operate, ensuring that the state pharmacy laws are not violated and consumers are protected against malpractice (Montoya & Jano, 2007).

The most important benefits of online pharmacies are privacy and convenience (Henney, 2001). Detailed written information for all medications is available online, enabling consumers to learn about the medications they have been prescribed and their actions. Consumers can also easily compare costs and product reviews and choose the best option from a variety of products (Kenreigh & Wagner, 2000). Online sale of medicines can be useful for people with chronic health conditions who need to purchase medicines on a monthly basis. It is especially beneficial for people living in rural areas who may not have access to certain medicines and can deliver their medicines through online pharmacies (Fan & Ying, 2008).

However, use of online pharmacies has its limitations. Since the World Health Organization's (2008) report about lack of transparency and documentation in India's drug approval process, several positive changes have been made in pharmaceutical research's pre-clinical, clinical, and toxicological stages. Despite this, growth of online pharmacies in the Indian market has been slow (Aithal & Shabaraya, 2018). Use of online pharmacies, as in the case of any e-commerce site, can result in the capture of consumers' personal information, potentially leading to misuse. Other concerns include sales of unapproved and illegal medicines and sales of health products with false claims. Furthermore, the need to upload a valid prescription and wait until the verification process is complete might hinder many consumers who are used to immediate access to products (Kenreigh & Wagner, 2000).

Despite the growth of online pharmacies in India during the past few years, traditional pharmacies have a comparatively more stable sales graph. A survey conducted by the National Community Pharmacists Association (NCPA)-Pfizer Digest in 2003 found that medicine sales in traditional pharmacies had increased by 14% from the previous year (NCPA-Pfizer Digest, 2005). Also, the net profit was 3.8% in 2003 which increased to 4% in 2004 (Montoya & Jano, 2007). This may be attributed to the expansion of services offered by pharmacies such as the management of chronic conditions and immunizations, which is not possible for online pharmacies. Moreover, traditional pharmacies provide additional discounts and credit to regular customers, promoting customer loyalty and repeated in-store purchases, which is not true for online pharmacies. Online pharmacies, on the other hand, are unreliable as they might sell unapproved medicines or drugs used for recreational purposes without any regulation. Therefore, people who buy medicines online are at risk for receiving products that are unsafe, counterfeit, or contaminated (Henney, 2000).

2 Literature review

In light of the benefits and limitations of using e-pharmacies for the purchase of medicines, consumers have mixed views with regards to usefulness of these pharmacies over traditional pharmacies (Ma, 2021). A good number of researchers used the Technology Acceptance Model (TAM) to investigate the purchase intentions of non-adopters by focusing on the factors that influence them to purchase medicines online in the past and later the models and frameworks has been modified. Using a questionnaire for 355 participants in China, this study identified a significant association between non-adopters' purchase intention and perceived usefulness and trustworthiness, a positive relationship between perceived ease of use and perceived usefulness and trustworthiness, and a negative relationship between perceived risk and trustworthiness (Alsadoun et al. (2021). The authors used both TAM and Unified Theory of Acceptance and Use of Technology-2 (called UTAUT-2) models to investigate factors such as effort expectancy, performance expectancy, facilitating conditions, social influence, hedonic motivation, habit, perceived trust, perceived risk, and cost on purchase intention of consumers in Saudi Arabia. Trust and risk were found to be important influential factors for motivating consumers to purchase medicines online. Another study conducted in Saudi Arabia found that only 23.1% of the participants were aware of online pharmacies and lack of awareness was the main reason for not purchasing medicines online12. The UTAUT model was used by Yin et al. (2016) to survey 274 participants in China and reported that perceived trust, perceived risk, social influence, and performance expectancy were influential factors in motivating consumers to purchase medicines online (Yin et al., 2016). Rahman et al. (2019) investigated the views of both pharmacists as well as consumers through questionnaires in the UAE found that 51.6% of consumers would buy medicines online mainly due to convenience and no wait times as in traditional pharmacies (Rahman et al., 2019). A study conducted in Hungary surveyed 1,055 consumers to investigate usage behavior, perceived advantages, and limitations of using online pharmacies. This study found that only 4.17% of the participants had used online pharmacies, but several participants indicated they were likely to purchase their medicines online soon (Fittler et al., 2018).

Considering studies conducted in India, Srivastava & Raina (2019) used partial least squares method and factor analysis of questionnaire responses of 184 participants in Bangalore and demonstrated a positive relationship between adoption of online pharmacy and intention to recommend, and effort expectancy, performance expectancy, hedonic motivation, and social influence (Srivastava & Raina, 2019) . Gupta (2020) investigated the purchase behavior and factors affecting online medicine purchase in a randomly selected sample of 100 participants in Jaipur using a questionnaire and found that more than half the participants used online pharmacies for purchasing medicines (Gupta, 2020). Factors that influenced the participants to use online pharmacies were convenience, time-effectiveness, home delivery, and 24/7 availability. However, the sample size was small and most participants were in the age group of 18-25 years and so, they were comfortable with using technology and shopping online. This has been reiterated in the study by Mahesh et al. (2020) who used an online survey to understand the purchase behavior and intentions of consumers based on their demographic characteristics (Mahesh et al., 2020). The study reported that 66% of consumers who purchased online medicines were 18-35 years old and were also the most likely to recommend online pharmacies to their family and friends.

Due to the lockdown in the recent COVID-19 pandemic, many consumers were forced to purchase essential products online, including medicines. A study conducted by Dutta & Bhattacharjee (2021) used a questionnaire to understand the factors related to online purchase of medicines and purchase patterns in Silchar, Assam (Dutta & Bhattacharjee, 2021). This study found that offers and discounts promote online purchase of medicines, recommendations and detailed information about medicines are an influential factor,

frequency of purchase has increased after the initiation of the pandemic, and online customer relationship management promotes online medicine purchase. A review by Singh et al. (2020) focused on aspects such as the types of online pharmacies, their advantages and limitations, their business model, regulations, their impact on economic growth and society, and their significance during the pandemic (Singh et al., 2020).

The literature lacks factors that influence consumers' actions and decisions to purchase medicines from online pharmacies. Studies conducted in India are very few and have been conducted on small samples in specific geographic regions, thereby raising questions on the generalizability of the findings. Furthermore, in previous studies, all demographic groups have not been equally represented in samples that might have impacted the findings (Gupta, 2020). Till date, no study has been carried out in the state of West Bengal to investigate consumers' adoption intention of online pharmacies. Therefore, this study aims to understand the factors that affect consumers' behavioral and purchase intention by conducting a quantitative study in eastern India and in and around West Bengal.

3 Hypotheses

Several models have been used to study the adoption of e-commerce by consumers. The Technology Acceptance Model (TAM) has specifically been used to understand the behavioral intention of consumers to adopt technology (Davis, 1989). The concepts of perceived ease of use and perceived usefulness have been derived from this model, both of which jointly influence consumers' behavioral intention towards the use of technology. The TAM has recently been used to predict consumers' adoption of e-commerce (Wu & Ke, 2015). Venkatesh et al. (2003) proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) model which included four main factors namely performance expectancy, effort expectance, intention and usage, and social influence. The models used by Venkatesh et al. (2003) was modified and we used the latent framework using modified UTAUT-2 Model. All these factors are proposed to influence consumer behavior and facilitating conditions are proposed to influence purchase intention. This model has been modified and used in several different studies in order to understand consumer purchase behaviors in different e-commerce categories (Yin et al., 2016). Further modification to this model was done to make it more relevant to the current e-commerce context by adding factors such as cost, hedonic motivation, and habit and this resulted in the development of the UTAUT-2 model (Hansen et al., 2018). This model has proved to be more relevant in investigating intention of purchase of online medicines, for instance, Sideiri et al. (2021) showed that the UTAUT-2 model was able to explain 74% of the variance observed in behavioral intention of consumers and 52% of the barriers preventing consumers' usage of technology (Sideiri, 2021).

This study aims to investigate consumer preferences in the usage of online pharmacies in three significant ways. First, a modified version of the UTAUT model is used to explore the factors that affect a person's choice and intention to purchase medicines online. Five factors that are used for analysis are perceived trust, social influence, performance expectancy, perceived ease of use, and perceived risk to better understand users' intention to use online pharmacies. Second, a quantitative design is used in the study to explore consumer responses and attempt to extract meaningful information that affect consumers' purchase decisions. Third, this study has been carried out in the state of West Bengal which will provide a valuable addition to the literature as no study till date has explored consumer preferences for online pharmacies in this region.

The consumers' purchase preferences and intention to adopt online pharmacies research model was developed and tested through a quantitative survey, which provided insights into the objectives of the study.

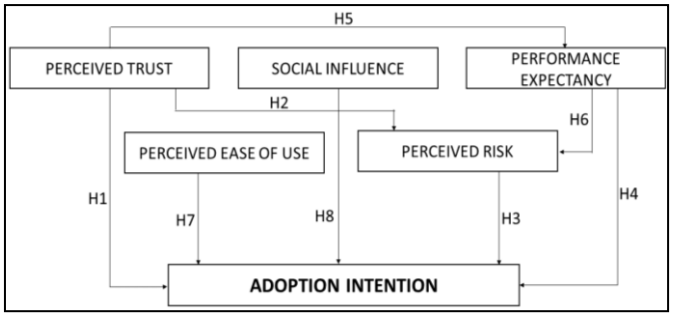

Figure 1: Modified UTAUT Model

Following are the Hypothesis used in our model:

H1: There is a positive association between perceived trust and adoption intention.
H2: There is a negative association between perceived trust and perceived risk.
H3: There is a negative association between perceived risk and adoption intention.
H4: There is a positive association between performance expectancy and adoption intention.
H5: There is a positive association between performance expectancy and perceived trust.
H6: There is a negative association between performance expectancy and perceived risk.
H7: There is a positive association between perceived ease of use and adoption intention.
H8: There is a positive association between social influence and adoption intention.

3 Methodology

I. Study Design

A survey method was used to collect quantitative data from participants and perform statistical analyses to verify the hypotheses. A questionnaire was designed to measure the adoption intention of consumers towards online pharmacies. It was divided into three parts. The first part comprised of demographic questions such as age, gender, educational qualification, income, employment status, marital status, location, and requirement of monthly purchase of medicines. The second part focused on online purchase behavior of participants in general including frequency, preferred platforms, preferred payment methods, and purchase of medicines online. The third part focused on questions regarding factors that were important in purchasing medicines online under the sub-domains perceived risk, social influence, perceived ease of use, performance expectancy, and perceived trust. In total, there were 42 questions - 8 questions about demographics, 6 questions about online shopping, and 26 questions about factors promoting online purchase of medicines.

II. Validation of Questionnaire

The content of the questionnaire was tested for appropriateness and comprehension by testing on a few random participants. Based on this pre-test, the questions were modified to make them more understandable for the intended audience.

III. Data Collection

The final questionnaire was distributed among the participants by means of Google Forms. An invitation to the survey was sent as a message to all contacts and they were encouraged to spread the message in their respective circles. The message comprised of information regarding the survey and a URL link to the Google Form. Participants were given 24 hours to complete the survey after clicking on the URL link.

IV. Statistical Analyses

The survey data were retrieved in Microsoft Excel and statistical analyses were performed using SPSS statistical software. Categorical variables such as demographic data and data pertaining to online shopping behavior were expressed as frequencies and percentages. Internal reliability testing was done by computing the Cronbach's alpha values. Factor analysis was carried out using the KMO and Bartlett's tests, and Eigen values were computed. According to Kaiser's rule, Eigen values greater than one were used to identify the five sub-domains. Percentage of variability explained by each of the sub-domains along with their Eigen values are reported. Regression analysis was performed to address the hypotheses, and R^2, adjusted R^2, and p-values were computed.

4 Results

A. Baseline characteristics of participants:

We received 600 survey responses and the participants' demographic characteristics are given in Table 1. The majority of the participants (22.2%) belonged to the age group of 31-35 years (n=133). Males constituted 73.2% (n=439) of the participants and females comprised of 26.8% (n=161). Around 55% (n=331) of the participants were graduates and around 57% (n=344) had a monthly income of less than Rs. 20,000. Over 80% (n=485) of the participants were working full-time. Around 62% (n=375) of the participants were married and 71% (n=426) lived in urban areas.

Table 1: Demographic characteristics of participants

Factor	**Frequency (n)**	**Percentage (%)**
Age		
Below 20	37	6.2
20-25	56	9.3
26-30	85	14.2
31-35	133	22.2
36-40	79	13.2
41-45	70	11.7
46-50	59	9.8
51-55	34	5.7
56-60	23	3.8
61-65	12	2.0
Above 65	10	1.7

Gender		
Male	439	73.2
Female	161	26.8
Educational qualification		
Doctoral	3	0.5
Postgraduate	95	15.8
Graduate	331	55.2
High school	151	25.2
Middle school	20	3.3
Monthly income		
Less than 20,000	344	57.3
20,000-50,000	174	29.0
50,000-1,00,000	65	10.8
Above 1,00,000	17	2.8
Current employment status		
Retired	27	4.5
Student	41	6.8
Working full-time	485	80.8
Working part-time	47	7.8
Marital status		
Divorced/Widowed	18	3.0
Married	375	62.5
Single	207	34.5
Geographic location		
Rural	174	29.0
Urban	426	71.0

B. Online shopping behavior:

With regards to frequency of shopping online, 35.8% (n=215) of the participants did online shopping two to three times a month and 29.7% (n=178) did online shopping two to three times a year. The most important factor for purchasing products online was price

(31.2%; n=187) followed by product quality (27%; n=162), and delivery time (15.3%; n=92). Almost 92% (n=551) of the participants stated that they had online pharmacy services in their locality. Despite this, only 56.7% (n=340) of the participants stated that they had purchased medicines online. The results are shown in Table 2.

Table 2: Online shopping behavior of participants

Question	**Frequency (n)**	**Percentage (%)**
How often do you do online shopping?		
Two to three times a month	215	35.8
Two to three times a week	31	5.2
Two to three times a year	178	29.7
Two to three times half-yearly	74	12.3
Two to three times quarterly	98	16.3
Do you have an Android mobile phone with internet facility?		
No	29	4.8
Yes	571	95.2
Availability of online pharmacy in your locality?		
No	49	8.2
Yes	551	95.8
What form of payment method do you use when shopping online?		
Cash on delivery	375	62.5
Debit card	123	20.5
Net banking	22	3.7
UPI	78	13.0
Other	2	0.3
What are your preferred online shopping platforms?		
Amazon	337	56.2
Apollo 24/7	43	7.2
Ebay	22	3.7
Flipkart	2	0.3
Flipkart Health+ (Sasta Sundar)	101	16.8
Medplus Mart	9	1.5

Myntra	47	7.8
Netmeds	4	0.7
Pharmeasy	6	1.0
Tata 1mg	7	1.2
Others	22	3.7
Which of these factors are important to you when shopping online?		
Delivery time	92	15.3
Popularity of the platform	28	4.7
Price	187	31.2
Product quality	162	27.0
Price with quality	40	6.7
Quality and delivery	28	4.7
Popularity, price, quality, and delivery time	63	10.5
Have you ever purchased medicines online?		
No	260	43.3
Yes	340	56.7
How many times have you purchased medicines online?		
1 time	68	11.3
1 to 5 times	131	21.8
6 to 10 times	52	8.7
More than 10 times	88	14.7
Never	261	43.5

C. Factors affect online purchase of medicines:

Five domains were investigated in our study namely, perceived trust, social influence, performance expectancy, perceived risk, and perceived ease of use. The reliability statistics for each of these domains is given in Table 3. All the Cronbach's alpha values are greater than 0.7, except for the value for social influence which is 0.67 (close to 0.7), indicating that the data obtained is significant and reliable.

Table 3: Cronbach's alpha values of variables

Variables	**Number of items**	**Cronbach's alpha**
Perceived trust	3	0.745
Social influence	3	0.670
Performance expectancy	5	0.750
Perceived ease of use	7	0.800
Perceived risk	8	0.831
Overall	26	0.906

Table 4 provides the percentage of variability explained by each domain and the Eigenvalues for each individual question in the survey. In total, 53.14% of the variability was explained by the identified domains.

Table 4: Total variance and Eigen values of variables based on factor analysis

Variables	**Share of explained total variance (%)**	**Eigen values**
Perceived risk	30.495	7.929
Social influence	1.874	7.209
Perceived ease of use	1.467	5.644
Performance expectancy	1.320	5.076
Perceived trust	1.227	4.717

Table 5 presents the regression analysis results with R^2, adjusted R^2, and p-values. The p-values for H1, H2, H3, H4, H5, H6, and H7 are statistically significant indicating the significance of these hypotheses.

Table 5: Results of regression analysis

Construct	**R square**	**Adjusted R square**	**p-value**
H1 – Perceived trust and adoption intention	0.029	0.038	<0.001
H2 – Perceived trust and perceived risk	0.207	0.205	<0.001

H3 – Perceived risk and adoption intention	0.012	0.016	0.008
H4 – Performance expectancy and adoption intention	0.020	0.027	0.001
H5 – Performance expectancy and perceived trust	0.275	0.274	<0.001
H6 – Performance expectancy and perceived risk	0.252	0.250	<0.001
H7 – Perceived ease of use and adoption intention	0.027	0.036	<0.001
H8 – Social influence and adoption intention	0.001	0.002	0.39

5 Discussions

We tested the relationship between five factors: perceived risk, social influence, performance expectancy, perceived ease of use, and perceived trust, and adoption intention of online pharmacies. From the significant p-values, it is evident that all relationships are statistically significant except the relationship between social influence and adoption intention. This indicates that perceived risk, perceived ease of use, performance expectancy, and perceived trust are important factors in consumers' adoption intention of online pharmacies. The findings confirm that using an internet pharmacy offers customers numerous advantages, including receiving prescription medications at their doorstep. Online pharmacies usually offer various services to consumers while making the purchase as well as after the purchase to ensure that they have a pleasurable and satisfying experience in purchasing medicines online, allowing them also to select their preferred brands of medicines.

The findings indicate that the ease of use of the online pharmacy site does not restrict the consumers when it comes to performance expectancy and perceived ease of use because the availability and usage of information technology do not act as a limiting factor for the customers. This implies that simplicity of use results in a favourable mindset towards adoption. The hypothesis that was developed for social influence showed a negative relationship with adoption intention, which suggests that the experiences of users or people who are considered influential in their peer group do not necessarily play an important role in the adoption intention of consumers. This is in contrast to previous research conducted by Srivastava & Raina (2021), who found that social networks do influence a user's opinion regarding the adoption of a new technology16. Additionally, perceived trust of the online platform motivated people to adopt online pharmacies whereas perceived risk of the platform led to an avoidance of ordering medicines online. Overall, by combining the various constructs from the existing theories, our proposed research model explained 53.14% of the variance related to adoption intention of online pharmacy.

Very few studies have analyzed the relationship between adoption intention and different factors. A study conducted by Srivastava & Raina (2021) in Bengaluru using the TAM model found that both performance expectancy and social influence significantly impacted adoption intention16, in addition to hedonic motivation, effort expectancy, and age. Another study conducted by Sabbir et al. (2021) in Bangladesh using the UTAUT model found that perceived trust and health literacy positively impacted adoption intention of consumers (Sabbir et al., 2021), whereas personal innovativeness and perceived risk negatively impacted adoption intention. A study conducted by Sampat & Sabat (2020) found that perceived usefulness, perceived risk, and trust were important factors that influenced adoption intention (Sampat & Sabat, 2020). A study conducted in Finland found the influential factors for adoption intention to be perceived ease of use and perceived usefulness (Hannula, 2015). Assin et al. (2022) found trust to be a moderately significant risk factor along with three dimensions of risk: physical risk, financial risk, and source risk (Assin et al., 2022).
Till date, different studies have reported the influence of different factors on the adoption intention of online pharmacies of consumers making it difficult to reach a consensus. Most studies have been conducted in specific geographic regions making it difficult to generalize the results. At the research level, this study has provided interesting insights into the behavior and adoption intention of consumers for using online pharmacies. To understand the adoption intention, we used a modified version of the UTAUT model which demonstrated good performance in predicting the adoption intention of consumers.

6 Limitations and Future Research Directions

Our study was limited to West Bengal, placing a geographic restriction on the results, indicating that the results cannot be generalized to a larger population group. Convenience sampling was used to gather the data, which may not be the best sampling strategy for determining how a technological platform will be adopted and used. In order to address the study objectives, combining qualitative and quantitative methods might increase the predictive power of the suggested model. Testing the model on the basis of a comparison study using categorized consumer profiles might be an easy method to expand the objectives of the research and re-validate the proposed model's robustness. The impact of variables such as gender, age, education and employment status, and prior experience using online pharmacies must be considered in the study as the use of online pharmacies grows in popularity.

6 Conclusion

This study proves that there is a growing trend and preference among people to use online pharmacies. The outcomes imply that online pharmacies are easy and simple to use. The quality of the information given and the simplicity with which one can navigate the online pharmacy will help one develop confidence in the platform. Perceived trust was considered to be an important factor linked to adoption intention. The availability of outdated and inaccurate information would cause consumers to feel distrustful towards the platform. Consumers' belief that using online pharmacies would make purchasing medicines hassle-free was also an important factor influencing adoption intention. Perceived risk of the platform, however, was found to be a negative factor that might motivate consumers to buy medicines offline. However, assuring customers that medicines are fresh and reliable, and providing cash-on-delivery payment options can provide reassurance to the customers about the safety of the platform. Finally, social influence was not found to be strongly linked to adoption intention indicating that individual experience with the platform may be more important for people to purchase medicines online.

Conflict of interest:

The authors have no conflicts of interest regarding this investigation and study of research.

References:

Abanmy N. (2017). The extent of use of online pharmacies in Saudi Arabia. Saudi Pharmaceutical Journal. 25(6):891–9.

Aithal A., Shabaraya A.R. (2018). Users Perspectives on Online Pharmacy Model. International Journal of Health Sciences and Pharmacy. 2(1):29–36.

Aithal S. (2016). A Review on various E-business and M-business models & Research Opportunities. International Journal of Management, IT and Engineering. 2016;6(1):275–98. https://doi.org/10.5281/ZENODO.161146

Alsadoun A., Iskandar Y., Tangiisuran B. (2020). Exploring the Factors that Influence the Adoption of Online Pharmacy in Saudi Arabia: A Conceptual Review. International Journal of Advanced Science and Technology. 29(10):262–9.

Applequist K. (1999). OnlineDrugs.com: Legal issues raised by online pharmacies. Drug Benefit Trends. 11:28–37.

Assin V., George N., Sivakumar P. (2022) Perceived Risk and Online Purchase Intention of E-Pharmacy: Examining the Moderating Role of Online Trust in the Indian Context. Spec Educ. 1(43):9663–85.

Davis F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly. 13(3):319.

Dutta D., Bhattacharjee B. (2021). CONSUMER PREFERENCE AND BUYING PATTERN OF MEDICINES THROUGH E-PHARMACY DURING THE COVID-19 PANDEMIC IN SILCHAR, ASSAM. Current Trends in Pharmaceutical Research. 8(1):192–211.

Fan G., Ying B. (2008). Development of B to C Ecommerce in Pharmaceutical Industry and the Strategy for the Development of Ecommerce in China's Pharmaceutical Retail Chains. China Pharmacy. 4(036).

Fittler A., Vida R.G., Káplár M., Botz L. (2018). Consumers Turning to the Internet Pharmacy Market: Cross-Sectional Study on the Frequency and Attitudes of Hungarian Patients Purchasing Medications Online. J Med Internet Res. 20(8):e11115.

Gupta M.S. (2020). Consumer Buying Behavior towards E-Pharmacy. Dogo Rangsang Research Journal. 2020;10.

Hannula S. (2015). Adoption and Usability of Online Pharmacies for Purchasing Prescription Medicines. [Finland]: LAPPEENRANTA UNIVERSITY OF TECHNOLOGY.

Hansen J.M., Saridakis G., Benson V. (2018). Risk, trust, and the interaction of perceived ease of use and behavioral control in predicting consumers' use of social media for transactions. Comput Human Behav. 80:197–206.

Henney J.E. (2000). Online pharmacies—Maintaining the safety net. Medscape Pharmacists. 1(1).

Henney, J.E. (2001). Cyberpharmacies and the role of the US Food And Drug Administration. In Journal of Medical Internet Research 3(1):e3. JMIR Publications Inc. https://doi.org/10.2196/jmir.3.1.e3

Kenreigh C.A. & Wagner L.T. (2000). The "e-nabling" of a profession. Medscape Pharmacists. 1(2).

Ma L. (2021). Understanding non-adopters' intention to use internet pharmacy: Revisiting the roles of trustworthiness, perceived risk and consumer traits. Journal of Engineering and Technology Management. 59:101613.

Mahesh A., Samuel V., Bag S., Kalyan P. (2020). E-Pharmacies: An emerging market in Indian retail pharmacy, An Indian perspective. Research Journal of Pharmaceutical Sciences. 9(1):1–6.

Montoya, I.D. & Jano, E. (2007). Online Pharmacies: Safety and Regulatory Considerations. In International Journal of Health Services (37(2):279–89). SAGE Publications. https://doi.org/10.2190/1243-p8q8-6827-h7tq

NCPA-Pfizer Digest. Total, Prescription Sales Increase at Nation's Independent Pharmacies. News release, May 2, 2005.

Rahaman S., Mohammed S., Manchanda T., Mahadik R. (2019). e-Pharm Assist: The Future Approach for Dispensing Medicines in Smart Cities. In: 2019 International Conference on Digitization (ICD). 263–7.

Sabbir, M.M., Islam, M. and Das, S. (2021), Understanding the determinants of online pharmacy adoption: a two-staged SEM-neural network analysis approach, Journal of Science and Technology Policy Management, 12(4):666–87.

Sampat B., Sabat K.C. (2020). CUSTOMER USAGE INTENTION OF ONLINE PHARMACIES: A DEVELOPING COUNTRY'S PERSPECTIVE. Journal of Services Research. 20(1/2):171–202.

Sideiri A., Cob Z., Drus S. (2021). Investigating the Factors Influencing the Adoption of Online Pharmacy in Oman. Journal of Hunan University Natural Sciences）. 48(10):465–78.

Singh H., Majumdar A., Malviya N. (2020). E-PHARMACY IMPACTS ON SOCIETY AND PHARMA SECTOR IN ECONOMICAL PANDEMIC SITUATION: A REVIEW. Journal of Drug Delivery and Therapeutics. 10(3-s):335–40.

Srivastava M, Raina M. (2021). Consumers' usage and adoption of e-pharmacy in India. Int J Pharm Healthc Mark. 15(2):235–50.

Venkatesh, V., Morris, M.G. and Davis, G.B. , Davis, F.D. (2003). User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly. 27(3):425-478.

Wu W.Y., Ke C.C. (2015). An Online Shopping Behavior Model Integrating Personality Traits, Perceived Risk, and Technology Acceptance. Social Behavior and Personality: an international journal. 43(1):85–97.

Yin M., Li Q., Qiao Z. (2016). A study on consumer acceptance of online pharmacies in China. In: Proceedings of the 18th Annual International Conference on Electronic Commerce e-Commerce in Smart connected World - ICEC '16. 1–8. ACM Press.