

Enhancing Perceived Ease of Use and Trust in existing Apps can boost the adoption of Online Pharmacy in India- an Empirical Study

Prof. Stafard Anthony

Department of Management, St. Paul Institute of Professional Studies, DAVV, Indore, India.

Prof. (Dr.) Anita Jain

Choudhary Charan University, Meerut, UP

Prof. (Dr.) Ajai Kumar Jain

Choudhary Charan University, Meerut, UP

ABSTRACT

Purpose – To explore the most significant factors which would enhance consumer likelihood for online pharmacy during and after Covid -19 pandemic using a sample representative of Indian users.

Design/methodology/approach – It was a primary data based exploratory survey study using the structured questionnaire with homogenous purposive sampling. Sample size was limited to one hundred respondents from few big cities of India. The Extended TAM (technology acceptance model) model was constructed after testing 11 hypotheses of constructs by using Smart PLS-SEM software.

Findings: Two factors- Perceived ease of use (PEOU) and Perceived trust were found to have significant impact on consumer attitude and intention towards choosing online pharmacy apps. Of the proposed Eleven hypotheses, six were accepted and five were rejected. Consumer attitude directly impacts user intention for online pharmacy apps, and PEOU strongly affects user perceived usefulness. While Perceived security positively builds user trust and perceived usefulness positively affects user satisfaction level.

Practical Implications: The study resulted in identifying two factors which can boost the adoption of online pharmacy apps by Indian people and keep them safe by minimizing the contacts. Factors for consumer adoption allow building stronger, robust, secure and reliable online pharmacy model handling increased traffic safely during and after Covid-19 pandemic.

Originality/Value: On-line pharmacy is one of the latest health apps and a new technological entrant, so very few studies have been conducted so far in India. Moreover, the related works from other parts of world have been limited to the merits, demerits & regulatory concerns of online pharmacy. During and Post Covid-19 pandemic online pharmacy may represent a new norm which may help Indian consumers to reduce the impact of covid-19 infection. This unique research highlights the two most important factors which can significantly affect consumer likelihood for online pharmacy mobile apps.

Keywords: Online Pharmacy, Attitude, Perceived Ease of Use, Trust, TAM, COVID-19 pandemic, new norm

Paper Type: Research Paper

INTRODUCTION

Today, the world has been facing the gigantic problem of covid-19 pandemic since last one year and the new strains of covid-19 infected cases are appearing. The world has adopted to many earlier pandemics from time to time by changing the norms of living. Similar is the case with Covid-19 pandemic. New norms are the norms of the present age set mostly to counteract the impact of covid-19 pandemic by minimizing man to man interaction. Some of new norms include the Stay at home, work from home, social distancing, repeated hand wash, purchasing drugs through online pharmacy etc.

Online pharmacy has a big potential to develop into a new norm. It is a single stop mobile app solution for online purchase of drugs. The app. provides for a selection of drugs, home delivery, and various e-commerce payment options. It also provides for other services like physician appointment and consultation, sale of health-related products, health awareness, and laboratory test services. The online pharmacy is boon for the consumers but it is essential for regulatory bodies, departments and the government agencies to take necessary steps in handling the proper supply of medicine through online pharmacy channel (Spain, J. et.al.2000). The health professional also plays a vital role in educating the consumer overuse of online pharmacy and benefits associated with it (Crawford, S.2003).

For accessing the online pharmacy channel perceived benefits and the perceived security or risk factors act vital factors for building consumer behaviour. Perceived risk further focussed on security of data like contact details, payment process & details, authentic pharma license, professional specialist while perceived benefits included points like delivery and ordering convenience, choices, and service differentiation (Gura, C. 2005). Apart from these various other constructs also constitute consumer inclination towards the purchase of medicine through an online pharmacy they are the profit realized by pharmacy, perceived risks, challenges associated with logistics, management of customer grievances and service delivery process, ethos and general awareness among consumer (Smith, A. 2006). The loyalty of consumer towards pharmacy is scaled on four dimensions (i) Development of trust (ii) Word of mouth (iii) Repurchase intent (iv) consumer satisfaction (Athawale, A. et.al.2015).

The service of pharmacy stores plays a critical role in catalysing the line of treatment of patients so it is very essential in enhancing all the interaction between consumer and pharmacists (Hamilton, J.2019). Mobile apps are a singular platform for delivering these various health services on user smartphone. Mobile health applications can be used to deliver medicine, access health information, find the list of doctors, hospitals, blood banks, ambulance services and purchase of medicines. Post COVID -19 the scenario for pharmacy will witness new measures both in retailing and drugs distribution. The online pharmacy model will provide secure access, lower price and a environment inducing social distancing. The online pharmacy platform will allow the patients to purchase drugs more safely in post COVID scenario.

In India the users of mobile internet have reached approximately 450 million and almost more than 3 lakhs health apps are available in various apps stores but the access to health apps is not significant, still there exists a significant market of online pharmacy apps due to digital boom, increasing awareness and strong pan India distribution by many players like netmeds, IMG, Pharmeasy. Indian pharma market is growing with 12% rate covers market size of US \$35 billion dollars in which online pharmacy contributes 1 billion US dollar currently. The online pharmacy market in India is still growing and possesses huge potential (Jain, A & Anthony, S.2020). Thus, identifying the factors influencing Indian consumer

likelihood for online pharmacy apps will help in improving its existing market and will re-direct the consumers to purchase the medicines through online pharmacy in safer mode. Past research work in this area has mainly focussed over eHealth planning, online pharmacy re-engineering, customer engagements and loyalty behaviour, designing health system and various regulatory issues attached with online pharmacy model across the globe. No specific, concrete and empirical study has been conducted to identify and understand the factors influencing and enhancing the consumer adoption of online pharmacy in Indian geography in post Covid scenario. Thus, this research is an effort to address the existing gap in research, by proposing a model that includes relevant variables, which explore the likelihood of adoption of online pharmacy in India and enhance the existing deliverables of such apps.

Research Objective

To identify and test the most important factors influencing the adoption of online pharmacy apps in India by:

- ✓ Proposing the extended TAM Model for acceptance of online pharmacy apps.
- ✓ Verifying the proposed extended TAM model using Partial least square Method of Structural Equation Modelling.

RESEARCH METHODOLOGY & ANALYSIS

The research was an exploratory primary data-based study where the constructs of Extended Technology Acceptance Model (E-TAM) were tested with the help of Smart PLS (2.0) path method. The model was found to be relevant and applicable for likelihood of adoption of Online Pharmacy apps by Indian users.

Convenience & homogenous purposive sampling was used for data collection through meticulously designed questionnaire. Working professionals, faculties, health professionals and Information technocrats from five tier -1 and tier-2 cities of India were included in the study. The cities included in the study were Indore, Mumbai, Pune, Bengaluru and Hyderabad from Indian subcontinent. Respondents were male & female working professionals, faculties and technocrats in the age group of 24 to 54 years from private sector institutions and enterprises. Majority of the respondents are working in the middle level of organizations in tier-1 and tier-2 cities of India. The size of sample was One hundred respondents with maximum ten (10) arrows pointing at latent variable in the proposed extended TAM model.

The questionnaire developed by the researcher, based on extant literature, were distributed among respondents manually and online and data was collected. The first part of questionnaire contains basic demographics and background information related to the respondents. The second part of the questionnaire had questions that were used to measure the factors of the hypotheses. Seven-point Likert-scale was used for responses ranging from 1=strongly Agree, 2=Somewhat Agree, 3=Slightly Agree, 4=Neither Agree nor Disagree, 5=Slightly Disagree, 6=Somewhat Disagree to 7=Strongly Disagree.

TAM Model by Fred Davis is a robust framework which has two predefined factors for assessing technology acceptance by users i.e. Perceived Ease of Use (PEU) and Perceived Usefulness (PU) and various other external factors like Perceived security (Enck et al. 2009), Perceived satisfaction (Rawson, A et.al. 2013) and Perceived Trust (Benamati et al. 2010). So, Technology Acceptance Model was extended to establish the significance and

predictability of various factors influencing acceptance of online pharmacy apps by Indian users.

The following hypotheses were formulated based on different constructs used to test the model.

- H1a: Perceived ease of Use positively influences the Perceived usefulness of user
- H1b: Perceived ease of Use positively influences the perceived trust of the user
- H1c: Perceived ease of Use positively influences the attitude of the user
- H2a: Perceived usefulness positively influences the perceived trust of the user
- H2b: Perceived usefulness positively influences the Intention of user
- H2c: Perceived usefulness positively influences the attitude of the user
- H3a: Perceived trust has a positive effect on the intention of the user
- H3b: Perceived trust has a positive effect on the attitude of the user
- H4: Attitude has a positive effect on intention of user
- H5: Perceived usefulness has a positive effect on user-perceived satisfaction
- H6: Perceived security has a positive effect on perceived trust of the user

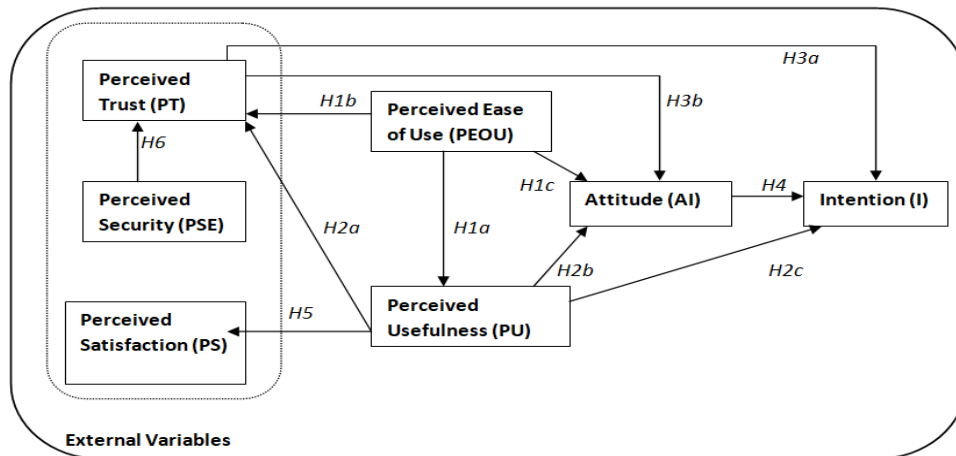


Figure 1: Proposed Modified TAM Model for adoption of Online Pharmacy Apps in India

Structural Equation Modelling (SEM) was chosen for analysing the data as it could be used to simultaneously estimate and test the above models. Partial Least Squares - Structural Equation Modelling (PLS-SEM) was used over Covariance-based Structural Equation Modelling (CB-Structural Equation Modelling SEM) for estimating theoretically justified cause-effect relationship model because my sample size was relatively small and available data was non-normal. Also, the PLS-SEM was a multivariate technique that had been applied in various functional areas of management.

MEASUREMENT MODEL**Table 1: Measurement Model**

Constructs	Latent Variable	Loading	Indicator Reliability	Composite Reliability	AVE (Convergent validity)	Cronbach Alpha (internal consistency)
Attitude	AI1	0.8579	0.73599241	0.9124	0.7226	0.872
	AI2	0.8143	0.66308449			
	AI3	0.8653	0.74874409			
	AI4	0.8618	0.74269924			
Intention	I1	0.8441	0.71250481	0.8748	0.6365	0.809
	I2	0.827	0.683929			
	I3	0.7814	0.61058596			
	I4	0.7343	0.53919649			
Perceived Ease of Use	PEOU1	0.707	0.499849	0.9103	0.5311	0.8886
	PEOU10	0.7098	0.50381604			
	PEOU11	0.7992	0.63872064			
	PEOU12	0.8024	0.64384576			
	PEOU4	0.6798	0.46212804			
	PEOU5	0.6812	0.46403344			
	PEOU7	0.6465	0.41796225			
	PEOU8	0.7452	0.55532304			
Perceived Satisfaction	PS1	0.7291	0.53158681	0.8643	0.6168	0.7915
	PS2	0.7224	0.52186176			
	PS3	0.7547	0.56957209			
	PS4	0.9188	0.84419344			
Perceived Security	PSE1	0.794	0.630436	0.9123	0.6754	0.8798
	PSE2	0.8175	0.66830625			
	PSE3	0.8292	0.68757264			
	PSE4	0.856	0.732736			
	PSE5	0.8112	0.65804544			
Perceived Trust	PT1	0.8489	0.72063121	0.8993	0.6918	0.8489
	PT2	0.7304	0.53348416			
	PT3	0.9048	0.81866304			
	PT4	0.8332	0.69422224			
Perceived Usefulness	PU1	0.7205	0.51912025	0.8637	0.516	0.8101
	PU2	0.654	0.427716			
	PU3	0.7833	0.61355889			
	PU4	0.8255	0.68145025			
	PU5	0.6252	0.4908750			
	PU7	0.6805	0.46308025			

Items Removed-Indicator items below 0.5: PEOU2, PEOU3, PEOU6 & PU6

Reliability and Validity of the collected data---As the indicators were reflective means highly correlated and interchangeable their reliability and validity were thoroughly examined. The model was tested for, reliability, validity and internal consistency.

The internal consistency & reliability were measured by Cronbach Alpha and composite reliability. Their values for exogenous variables were found to be i.e. *perceived ease of use* (0.8886 & 0.9103) and *perceived security* (0.8798 & 0.9123). For endogenous variables the values were found to be i.e. *Attitude* (0.872 & 0.9124), *Intention* (0.809 & 0.874), *Perceived Satisfaction* (0.7915 & 0.8643), *Perceived Trust* (0.8489 & 0.8993), *Perceived Usefulness* (0.8101 & 0.8637). As all the values of exogenous and endogenous variables were found to be above threshold values so, the **internal consistency and composite reliability of the collected data were established**. (Threshold value for Cronbach Alpha must be greater than 0.7 and must be > 0.8 for composite reliability (Henseler et al., 2009)

The validity of the data was tested by establishing convergent and discriminant validity. For establishing the convergent validity, that average variance extracted (AVE) and outer loadings were considered which had a threshold value greater than 0.5 (Bagozzi & Yi, 1988) (Fornell & Larcker, 1981). Referring to Table 1 for exogenous variable and for endogenous variable i.e. *Attitude*(0.7266), *Intention*(0.6365), *Perceived Satisfaction*(0.6168), *Perceived Trust*(0.6918), *Perceived Usefulness*(0.516), *Perceived ease of use* (0.5311) and *Perceived security* (0.6754) AVE values were above threshold and thus convergent validity was also established.

Table 2: Indicator Item Cross Loading

Constructs	Attitude	Intention	Perceived Ease of Use	Perceived Satisfaction	Perceived Security	Perceived Trust	Perceived Usefulness
AI1	0.8579	0.6264	0.6582	0.559	0.5231	0.5903	0.5733
AI2	0.8143	0.519	0.5798	0.4462	0.3843	0.4342	0.5815
AI3	0.8653	0.6216	0.6071	0.4517	0.5129	0.5282	0.5537
AI4	0.8618	0.6397	0.6372	0.5676	0.5044	0.5457	0.5239
I1	0.6395	0.8441	0.4092	0.5659	0.6574	0.683	0.4993
I2	0.5608	0.827	0.4248	0.6103	0.5331	0.576	0.4542
I3	0.4637	0.7814	0.4012	0.6608	0.5316	0.5598	0.3836
I4	0.583	0.7343	0.6204	0.5159	0.4546	0.5873	0.5654
PEOU1	0.6126	0.4905	0.707	0.4769	0.3953	0.4453	0.5152
PEOU10	0.5128	0.524	0.7098	0.6175	0.5337	0.5602	0.497
PEOU11	0.5105	0.3474	0.7992	0.4916	0.4434	0.4771	0.6121
PEOU12	0.4955	0.4992	0.8024	0.5044	0.428	0.4928	0.6343
PEOU4	0.5794	0.4656	0.6798	0.4547	0.4444	0.4673	0.5468
PEOU5	0.4967	0.3274	0.6812	0.3644	0.3754	0.3602	0.5366
PEOU7	0.4608	0.3613	0.6465	0.4219	0.4127	0.2723	0.5011
PEOU8	0.5613	0.3855	0.7452	0.447	0.4174	0.4099	0.5856
PEOU9	0.5551	0.3969	0.7711	0.4644	0.3694	0.3738	0.6139
PS1	0.3578	0.4563	0.421	0.7291	0.5074	0.6411	0.3092
PS2	0.4241	0.5737	0.4224	0.7224	0.6063	0.6171	0.439
PS3	0.4312	0.5479	0.514	0.7547	0.475	0.5487	0.4254

PS4	0.6118	0.6851	0.6421	0.9188	0.6222	0.772	0.5816
PSE1	0.4115	0.5023	0.3586	0.5434	0.794	0.6679	0.4142
PSE2	0.5584	0.561	0.5576	0.5368	0.8175	0.6301	0.519
PSE3	0.3618	0.4764	0.3527	0.5234	0.8292	0.5863	0.4473
PSE4	0.4714	0.6128	0.5509	0.6227	0.856	0.6607	0.5098
PSE5	0.5264	0.6544	0.5609	0.6621	0.8112	0.6849	0.5474
PT1	0.5246	0.6371	0.4629	0.6368	0.7155	0.8489	0.4921
PT2	0.5345	0.6063	0.5303	0.5571	0.4818	0.7304	0.534
PT3	0.4913	0.6362	0.5112	0.7641	0.7296	0.9048	0.5003
PT4	0.5169	0.6423	0.4763	0.7704	0.6798	0.8332	0.5473
PU1	0.5472	0.4715	0.6181	0.3961	0.5072	0.4631	0.7205
PU2	0.4352	0.2282	0.57	0.2553	0.278	0.2011	0.654
PU3	0.442	0.4339	0.5675	0.4507	0.4507	0.5526	0.7833
PU4	0.5531	0.5235	0.6835	0.5156	0.4606	0.5317	0.8255
PU5	0.4718	0.4696	0.4345	0.3458	0.3934	0.3374	0.6252
PU7	0.3578	0.4119	0.4232	0.4809	0.4385	0.5248	0.6805

Table 3: Discriminant Validity (Fornell & Larcker Criteria)

	Attitude	Intention	Perceived Ease of Use	Perceived Satisfaction	Perceived Security	Perceived Trust	Perceived Usefulness
AI	0.850059						
I	0.7105	0.79781					
PEOU	0.7313	0.5819	0.728766				
PS	0.598	0.7328	0.6493	0.785366			
PSE	0.5695	0.6866	0.5827	0.706	0.8218		
PT	0.6206	0.7585	0.594	0.7237	0.7888	0.8317	
PU	0.6549	0.6005	0.6707	0.5776	0.5947	0.6225	0.71833

- The diagonal are the square root of AVE of latent variable and indicates the highest value in row and column

For establishing discriminant validity two approaches were followed (i) factor cross-loadings and (ii) Fornell Lacker Criterion. For the factor cross-loadings, the indicator item cross-loading was calculated, as referred in Table 2. For each indicator the value is highlighted with bold and grey tabs. The highlighted values were found to be higher than all the loading values in that column. Thus, the discriminant validity through cross-loading approach was well established. For establishing the discriminant validity through Fornell Lacker Criterion the square root of AVE value of all latent variables must be higher in comparison to latent variable correlations values in respective row and column. Referring to the Table 3 this condition was observed well and thus Discriminant validity through Fornell Lacker Criterion was also well established.

Since it is reflective model so indicators *PEOU2*, *PEOU3*, *PEOU6* & *PU6* with path loading less than 0.5 were removed.

STRUCTURAL EQUATION MODEL

Table 4: Predictive Relevance (Q^2) Through Blindfolding and Coefficient Of Determination (R^2) (endogenous variables)

Constructs	R^2	Q^2
Attitude	0.594	0.418
Intention	0.67	0.4134
Perceived Satisfaction	0.334	0.1988
Perceived Trust	0.662	0.4357
Perceived Usefulness	0.594	0.3062

Coefficient of determination (R^2) for Endogenous Variables is used to assess the strength of the linear relationship between two variables in the model. Referring to the table 4.0, the coefficient of determination, R^2 was 0.594 for the endogenous latent variable, *Intention (I)* which meant that the latent variables *Perceived Trust (PT)*, *Attitude (AI)* moderately explained 59.4% of the variance in *Intention (I)*. The coefficient of determination, R^2 was 0.67 for the endogenous latent variable, *Attitude (AI)* which meant that latent variable *Perceived ease of use (PEOU)* substantially explained 67% of the variance in *(Attitude) AI*. The coefficient of determination, R^2 was 0.662 for the *Perceived Trust (PT)* endogenous latent variable which meant that latent variable, *Perceived Security (PSE)* moderately explained 66.2% of the variance in *Perceived Trust (PT)*. The co-efficient of determination, R^2 was 0.594 for the *Perceived Usefulness (PU)* endogenous latent variable which that the latent variable *Perceived ease of use (PEOU)* moderately explained 59.4% of the variance in *Perceived Usefulness (PU)*. The co-efficient of determination, R^2 was 0.334 for the *Perceived Satisfaction (PS)* **exogenous** latent variable which meant that the latent variable *Perceived Usefulness (PU)* moderately explained 33.4% of the variance in *Perceived Satisfaction (PS)*.

Note-- R^2 above 0.67 indicates “substantial relationship, above 0.33 indicates “moderate relationship” and above 0.19 indicates a “weak relationship” model.

For model predictive relevance, Stone-Geiser's- Q^2 value is measured for all endogenous variables in the model. The values of Q^2 for all latent variable must be more than zero (0). Referring to the table 4.0, the values of Q^2 for all endogenous variables of the model i.e. *Attitude*, *the intention*, *Perceived Satisfaction*, *Perceived Trust*, *Perceived Usefulness* were 0.418, 0.4134, 0.1988, 0.4357, 0.3062 respectively. Since all the values were more than zero thus model had predictive relevance for these endogenous variables.

Table 5: T-Statistics of Path Coefficients (Inner Model)

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)	Status
AI -> I	0.3691	0.3649	0.1412	0.1412	2.613	Supported

PEOU -> AI	0.4857	0.5227	0.1629	0.1629	2.9813	Supported
PEOU -> PT	0.0882	0.0543	0.1789	0.1789	0.4931	Rejected
PEOU -> PU	0.7707	0.7808	0.0628	0.0628	12.2637	Supported
PSE -> PT	0.6306	0.6432	0.1724	0.1724	3.6589	Supported
PT -> AI	0.2571	0.2601	0.1326	0.1326	1.9393	Rejected
PT -> I	0.4997	0.5372	0.1625	0.1625	3.0757	Supported
PU -> AI	0.1206	0.0811	0.1788	0.1788	0.6743	Rejected
PU -> I	0.0477	0.0114	0.1235	0.1235	0.3864	Rejected
PU -> PS	0.5776	0.6107	0.1152	0.1152	5.0153	Supported
PU -> PT	0.1795	0.2085	0.1638	0.1638	1.0954	Rejected

Table 6: T-Statistics of Path Coefficients (Outer Model)

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
AI1 <- AI	0.8579	0.8604	0.0421	0.0421	20.3804
AI2 <- AI	0.8143	0.8185	0.0771	0.0771	10.5676
AI3 <- AI	0.8653	0.8747	0.0411	0.0411	21.0427
AI4 <- AI	0.8618	0.8668	0.0456	0.0456	18.9018
I1 <- I	0.8441	0.8495	0.0773	0.0773	10.9213
I2 <- I	0.827	0.8219	0.0882	0.0882	9.3764
I3 <- I	0.7814	0.7802	0.1125	0.1125	6.948
I4 <- I	0.7343	0.7282	0.1144	0.1144	6.4203
PEOU1 <- PEOU	0.707	0.6821	0.1058	0.1058	6.6798
PEOU10 <- PEOU	0.7098	0.6883	0.1141	0.1141	6.22
PEOU11 <- PEOU	0.7992	0.779	0.0708	0.0708	11.2828
PEOU12 <- PEOU	0.8024	0.7938	0.0672	0.0672	11.9453
PEOU4 <- PEOU	0.6798	0.6487	0.1257	0.1257	5.4065
PEOU5 <- PEOU	0.6812	0.6593	0.1258	0.1258	5.4125
PEOU7 <- PEOU	0.6465	0.663	0.1347	0.1347	4.7989
PEOU8 <- PEOU	0.7452	0.7575	0.0782	0.0782	9.5275
PEOU9 <- PEOU	0.7711	0.7749	0.0631	0.0631	12.2269
PS1 <- PS	0.7291	0.6944	0.1063	0.1063	6.8562
PS2 <- PS	0.7224	0.7073	0.1196	0.1196	6.041
PS3 <- PS	0.7547	0.7584	0.1178	0.1178	6.4077
PS4 <- PS	0.9188	0.9193	0.0276	0.0276	33.255
PSE1 <- PSE	0.794	0.7942	0.0784	0.0784	10.1315
PSE2 <- PSE	0.8175	0.806	0.0721	0.0721	11.3405
PSE3 <- PSE	0.8292	0.8174	0.0935	0.0935	8.8727
PSE4 <- PSE	0.856	0.8523	0.0536	0.0536	15.9704
PSE5 <- PSE	0.8112	0.8095	0.068	0.068	11.9241
PT1 <- PT	0.8489	0.8372	0.0829	0.0829	10.2416
PT2 <- PT	0.7304	0.7115	0.1445	0.1445	5.0532
PT3 <- PT	0.9048	0.8987	0.041	0.041	22.0924
PT4 <- PT	0.8332	0.8309	0.0713	0.0713	11.6868

PU1 <- PU	0.7205	0.7009	0.1078	0.1078	6.6816
PU2 <- PU	0.654	0.6372	0.1308	0.1308	4.9996
PU3 <- PU	0.7833	0.7798	0.0793	0.0793	9.878
PU4 <- PU	0.8255	0.8244	0.0428	0.0428	19.2685
PU5 <- PU	0.6252	0.6084	0.1294	0.1294	4.8314
PU7 <- PU	0.6805	0.6894	0.0983	0.0983	6.9234

Assessment of PLS Path Model--For Inner Model, the relationship between two constructs must have t value more than 1.96 at 5% significant level. Thus, referring to Table 5.0, the t-values between constructs – *Attitude and Intention* (2.613), *Perceived Ease of use and attitude*(2.9813), *perceived ease of use and perceived usefulness*(12.2637), *perceived security and perceived trust*(3.6589), *Perceived Trust and intention*(3.0757), *perceived usefulness and perceives satisfaction*(5.0153) were found to be above 1.96 which supported the hypotheses and established direct and a significant relationship between them. But t-values between constructs *perceived ease of use and perceived trust*(0.4931), *perceived trust and attitude*(1.9393), *perceived usefulness and attitude*(0.6743), *perceived usefulness and intention*(0.3864) and *perceived usefulness and perceived trust*(1.0954) were found to be less than 1.96 which did not support the hypotheses and hence there were no direct relationships between them. For outer model, referring to Table 6.0, the t-values were found to be well above 1.96 for each construct and indicator hence supported the hypotheses and model. The t-value for the outer model is elaborative therefore they are mentioned in the table.

FINDINGS & DISCUSSION

In this study, 51% of the respondents were male and 49% respondents were females, the distribution was quite balanced and no gender biased existed. Majority of respondents were married about 64% and maximum 66% of respondents had income more than 2 lakhs per annum which represented a mature consumer behaviour and strong purchasing decision intent.

Using Smart PLS 2.0 the internal consistency reliability was established in the study thus the correlation between the indicators producing the same result for a construct was established and composite reliability was also well established which explained shared variance between indicators of a latent construct. Obtaining internal consistency and composite reliability explained the strong relationship between indicators and respective constructs. The standardized loading for discriminant validity and convergent validity are well established and cross-loading measurements are also satisfied.

The results of hypothesized path coefficient indicated that out of eleven (11) hypotheses, six (6) were supported while five (5) hypotheses were not supported. Seeking the hypothesis individually, the *H1a to H1c* depicted the effect of *PEOU on perceived usefulness, trust and attitude*. There was a significant influence of ease of use over user attitude because if it was easy to use and access online pharmacy apps then buying attitude will be more positive. This result was consistent in previous work (Chua and Lai, 2003). *PEOU* was also found positive and significant to usefulness of online pharmacy apps as if such apps are easy to use then timely and faster purchase of medicine can be achieved. The result is previously showed in the work (Lee and Jun, 2007; Revels et al., 2010). The relation between *PEOU* and *trust* was though positive but insignificant. In previous work it was showed that they are significant (Wu and Chen, 2005) but in this study the ease of using online pharmacy apps does not

develop that levels of trust because user trust is more depended on correct and timely delivery of medicine.

Hypotheses, *H2a to H2c* depicted the effect of *PU on trust, intention and attitude*. The effect of usefulness over user trust was well supported in previous work (Lee and Jun, 2007); *PU* effect over user intention was well supported in previous work (Teo et al 2010.); *PU* effect over attitude was well supported in previous work (Amin et al., 2014); but in this study though all this effect were positive but they were not significant. One of the plausible reasons for this was that usefulness of online pharmacy apps does not guarantee user trust for correct and timely delivery of medicine, also usefulness does not develop user intention and attitude because purchase of medicine is incident-based and oriented for treatment purpose.

For hypothesis, *H3a and H3b* showed effect of *trust over user intentions and attitude*. *Trust* effecting user intention was positively supported in previous work (Han and Windsor, 2011) and (Kumar et al. 2017) and trust effecting user attitude was supported in work by (Thakur 2013). In this study, the *perceived trust* developed a positive and significant effect over user intention because if the trust was developed that there shall be timely and correct delivery of medicine then it assured positive user purchase intentions. The effect of trust on attitude was positive but not significant might be in the case of online pharmacy apps the user attitude's and emotional measure are not connected with their trust over apps or related technology.

Hypothesis, *H4* showed the effect of *attitude over the intention*. The effect was positive and significant in the study. It was supported in the previous work by Lin, 2011. With the use of online pharmacy, user developed positive behavioural inclination with likeable experience, convenience and ease.

Hypothesis *H5* showed the effect of *PU over satisfaction*. The effect was supported in the previous work also (Lewis, 2002) and in this study also it was supported because more benefits and usefulness the user get from online pharmacy more satisfaction was derived. Higher satisfaction decreased the gap between the expected outcome and standard usage of online pharmacy apps.

For the last hypothesis, *H6* depicted the effect of security over user trust. In the study also the effect was positive and significant. In past work also derived security affected user trust level (Poon, 2008). If online pharmacy apps and related technology are likely to be more secure than the user trust level will increase with a high index of confidentiality.

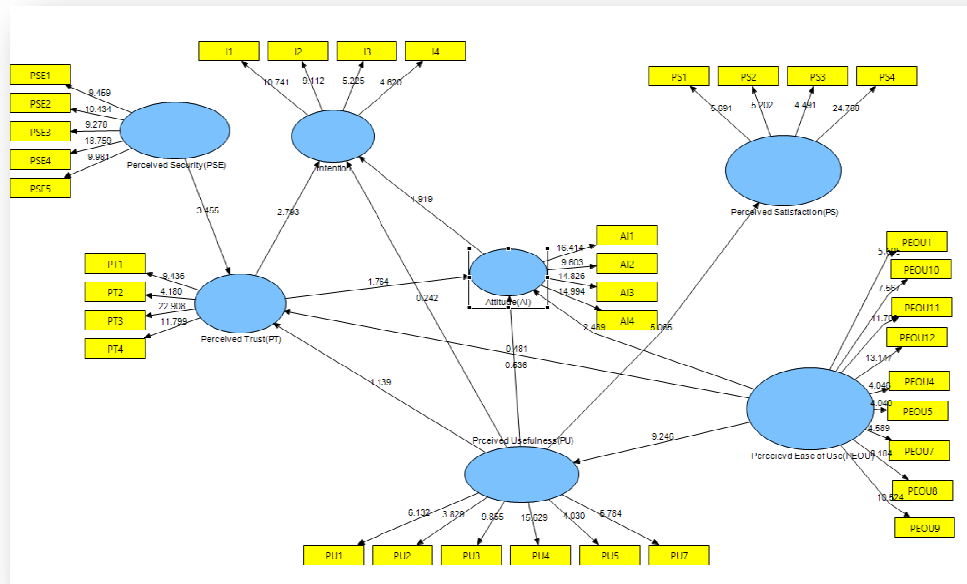
For endogenous variable, *Intention, Attitude, Perceived trust, Perceived Usefulness and Perceived Satisfaction*, the co-efficient of determination R^2 value is highest for variable user Attitude. This means that for developing user Attitude towards online pharmacy apps the ease of use was strongly affecting. More the online pharmacy apps are user friendly and easy to access more will be a positive behavioural will get build-up. Also, the R^2 value for endogenous variable perceived trust was high and for perceived security it was moderate. More the user feels that the online pharmacy apps are secure and technology is reliable more their trust towards purchasing medicine through such apps will increase. Seeking R^2 value its evident that endogenous variable intention is moderately explained by user attitude and *PU* is moderately explained by *PEOU*. For online pharmacy players, it was essential to increase user intention and perceived benefits. Therefore, they need to work on apps designing, awareness campaigns, promotion and various price benefits. They need to increase their operation width with more coverage of geography and enhanced distribution & logistics.

Seeking predictive relevance all the endogenous construct was well above the zero and their prevalence with the model was well established.

RESULTS

This study was novel and derives various implications in identifying factors for adoption of online pharmacy apps in India. The designing of online pharmacy apps are very essential in the Indian context because it allows user-friendly access. As per the study results also its was suggested that if the user has eased in accessing online pharmacy apps then they will seek more benefits and sense good experience which ultimately will construct a strong user behaviour towards such apps. There exist large market opportunities and Indian user will develop a strong trust over online pharmacy apps if they sense security regarding their personal data, payment processes and authenticated drug sale. The result of the study also supported that if Indian user trust over the use of apps increase then it will develop strong user intention for accessing online pharmacy mode and will boost user satisfaction through timely delivery, price benefits augmented health services and health awareness. Stakeholders and online pharmacy players should emphasize ease of use, usefulness, trust and security for developing strong user attitude and intent for the adoption of online pharmacy apps, because in the post COVID scenario it is very essential to develop sanitary environment where drug delivery is secure for consumers and adaptable with social distancing.

Figure 2: Extended TAM Model for adoption of Online Pharmacy Apps in India



LIMITATIONS

Alike all research works this study has some limitations which provide opportunities for future work. Given the mobile internet user in India is more than 448 million but the sample size of 100 must be disproportionate. The sample covers working professionals from various metro cities like Bangalore, Mumbai, Hyderabad, Pune, Bengaluru and Indore and thus response from another geography can be included with segregation of urban and rural population. Also, convenience purposive sampling is deployed which may not yield the true representation. Stratified sampling or quota sampling can be used to include all sort of demographic factors.

CONCLUSION

The study shows that the use attitude was driven by the amount of ease and convenience the user experience for using online pharmacy apps. In the study three indicators of perceived ease of use were deleted, as it showed very less path loading. The indicators were availability of drugs from different manufacturers, saving of time and training for using of such apps. Indian user is more influenced by easy language options, price schemes, uploading of prescriptions and timely intake of medicine. Thus, with such ease the user is deriving high perceived usefulness also which leads to high satisfaction levels. Also, the high security and trust of user over online pharmacy apps is constructing their intention to recommend the further use. The online pharmacy companies must focus on deriving easy and flexible user process for online drug purchase leading to increase use of online pharmacy app which will lead a safer drug purchase in post COVID situation. Through home delivery, e-payments, online return policy and lesser use of currency online pharmacy will stimulate the social distancing among Indian consumers for purchase of drugs.

IMPLICATION OF THE STUDY

The study is an original research work which may further the research in the same area by use of extended TAM model. The industry can also use the results for enhancing the app to boost the sale. Last but not the least, online pharmacy may establish a new norm for purchasing medicines to minimize the impact of covid-19 pandemic or any other airborne infection.

REFERENCES

- Geisser, S. (1974), "A predictive approach to the random effect model", *Biometrika*, Vol. 61 No. 1, pp. 101-107.
- Claes Fornell and David F. Larcke (1981)." Evaluating Structural Equation Models with Unobservable Variables and Measurement Error", *Journal of Marketing Research* Vol. 18, No. 1 pp. 39-50
- Bagozzi, R. and Yi, Y. (1988) On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Sciences*, 16, 74-94.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, 20(2), 195–204.
- Gefen, David & Straub, Detmar & Boudreau, Marie-claude. (2000). Structural Equation Modelling And Regression: Guidelines For Research Practice. *Communications of the Association for Information Systems*. 4. 10.17705/1CAIS.00407.
- Spain, J.et.al.(2000) " Selling Drugs Online : distribution-related legal/ regulatory issues", *International /marketing Review* , Vol. 18 , No. 42001, pp . 432-449
- Chau, P.Y.K. and Lai, V.S.K. (2003), "An empirical investigation of the determinants of user acceptance of internet banking" , *Journal of Organizational Computing and Electronic Commerce*, Vol. 13 No. 2, pp. 123-145.
- Crawford, S.(2003) "Internet Pharmacy: Issues of Access, Quality, Costs, and Regulation", *Journal of Medical Systems*, Vol. 27, No. 1, February 2003 (C ° 2003)

Haenlein, M. & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis, *Understanding Statistics*, 3(4), 283–297.

Ca'lin Gura'u, (2005), "Pharmaceutical marketing on the internet: marketing techniques and customer profile", *Journal of Consumer Marketing*, Vol. 22 Iss 7 pp. 421 – 428

Wu, I.L. and Chen, J.L. (2005), "An extension of trust and TAM model with TPB in the initial adoption of online tax: an empirical study" , *International Journal of Human Computer Studies*, Vol. 62 No. 6, pp. 784-808.

Smith, A.(2006) "Barriers to accepting e-prescribing in the USA " , *International Journal of Health Care Quality Assurance* Vol. 19 No. 2, 2006 , pp. 158-180

Lee, T.M. and Jun, J.K. (2007), "Contextual perceived value? Investigating the role of contextual marketing for customer relationship management in a mobile commerce context" , *Business Process Management Journal*, Vol. 13 No. 6, pp. 798-814.

Petter, S., Straub, D., and Rai, A. (2007). Specifying formative constructs in information systems research, *MIS Quarterly*, 31 (4), 623-656.

Poon, Wai Ching. (2008). Users' adoption of e-banking services: The Malaysian perspective. *Journal of Business & Industrial Marketing - J BUS IND MARK.* 23. 59-69. 10.1108/08858620810841498.

Anjali Patwardhan Dhruv Patwardhan, (2008),"Business process re-engineering saviour or just another fad?", *International Journal of Health Care Quality Assurance*, Vol. 21 Iss 3 pp. 289 – 296

John Hamilton, (2009) "Building a targeted pharmacy customer engagement approach", *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 3 Issue: 4, pp.381-396,

Henseler, J., Ringle, C., & Sinkovics, R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20(2009), 277–320.

Teo, T. (2010), "Examining the influence of subjective norm and facilitating conditions on the intention to use technology among pre-service teachers: a structural equation modeling of an extended technology acceptance model" , *Asia Pacific Education Review*, Vol. 11 No. 2, pp. 253-262

Lin, H.-F. (2011), "An empirical investigation of mobile banking adoption: the effect of innovation attributes and knowledge-based trust" , *International Journal of Information Management*, Vol. 31 No. 3, pp. 252-260.

Han, B. and Windsor, J. (2011), "User' s willingness to pay on social network sites" , *Journal of Computer Information Systems*, Vol. 51 No. 4, pp. 31-40.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2013). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks: Sage.

Thakur, R. and Srivastava, M. (2013), "Customer usage intention of mobile commerce in India: an empirical study" , *Journal of Indian Business Research*, Vol. 5 No. 1, pp. 52-72.

Amin, M., Rezaei, S. and Abolghasemi, M. (2014), "User satisfaction with mobile websites: the impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust" , Nankai Business Review International, Vol. 5 No. 3, pp. 258-274.

Amod S. Athavale Benjamin F. Banahan, III John P. Bentley Donna S. West-Strum (2015),"Antecedents and consequences of pharmacy loyalty behavior", International Journal of Pharmaceutical and Healthcare Marketing, Vol. 9 Iss 1 pp. 36 - 55

Kumar, V.V., Lall, A. and Mane, T. (2017), "Extending the TAM model: intention of management Students to use mobile banking: evidence from India" , Global Business Review, Vol. 18 No. 1, pp. 238-249.

Jain, A.K.& Anthony, S. (2020), "Online Pharmacy in India- A SWOT Analysis (2020)", Parishodh Journal, Vol. IX Issue. III, March/2020, pp. 4464-4479.