ADOPTION OF UPI (UNIFIED PAYMENTS INTERFACE) BY RURAL PEOPLE: AN EMPIRICAL INVESTIGATION

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ABSTRACT

The present study is conducted to understand the adoption of UPI (Unified Payments Interface) among rural people in India. Meta-UTAUT (Unified Theory of Acceptance and Use of Technology) model is used to evaluate the critical factors. A well-structured questionnaire was distributed among 195 users of UPI in villages of Haryana and the data collected was analysed using PLS-SEM. A total of 13 hypotheses were proposed and 9 of them were accepted. Findings show that Social Influence (SI), Performance Expectancy (PE), Effort Expectancy (EE), and Facilitating Conditions (FC) have direct positive influence on Attitude whereas only PE & FC have direct effect on BI. Attitude fully mediates the effects of EE & SI on BI as they do not have direct significant impact on BI. Whereas, it partially mediates the impact of FC and PE on BI as they have direct as well as indirect effect on BI. On the other hand, direct influence of PE & FC on attitude is strong as compared to their direct influence on BI.

The study explores the critical factors which influence the adoption of UPI among rural people and also discusses how this knowledge can be used to improve UPI adoption among rural people. UPI has provided newer digital payment avenue to both urban and rural consumers in India. However, adoption of UPI in rural India remains unexplored area. It is one of the pioneer studies in India context to explore the adoption of UPI among rural India.

Keywords: *Meta-UTAUT, UTAUT, Rural India, UPI, Behavioural Intention, Technology Adoption.*

INTRODUCTION

Mobile phones have impacted the life of people in the way no other innovation has ever impacted and the rate of adoption was fastest in the history of technological adoption. By providing convenient payment channels, it has been changing the face of banking and payment industry (Chawla & Joshi, 2020). The increasing usage of mobile phones has had a remarkable influence on the digital payments landscape in India. Although the industry is not new to getting digital, in India, demonetization set the stage for proliferation of digital payments and now the pandemic has substantially sped up the use of digital technology, having profound influence on the future of the banking industry as well as the entire financial ecosystem. (Doshi, 2020).

Government of India is taking a number of steps to build a technological infrastructure in collaboration with the National Payments Corporation of India (NPCI), an organisation for all retail payments in India as digital payment systems have the potential to serve a large portion of the country's population (Patil et al., 2020). Deepening of digital payment ecosystem has even become one of the prime goals of National Strategy for Financial Inclusion (NSFI) prepared by RBI (Reserve Bank of India, 2020). India's payment system is strong, no matter which bank a person has an account with, it gives them the freedom to choose their preferred channel and mobile app provider (Pazarbasioglu et al., 2020)

The NPCI, launched UPI (Unified Payments Interface) in 2016 and with the introduction of the UPI, India has made a significant step toward becoming a cashless economy. The Reserve Bank of India manages NPCI, and its major purpose is to help India transition to a digital economy. UPI is a single-window interface, which allows people to make transfers between bank accounts instantly, using a very highly secured encryption format without any cost. This means money can be sent to a bank account using a mobile number, UPI ID (virtual address) or QR code via any mobile application which supports UPI platform. Earlier, UPI platform was launched with the application named BHIM UPI with some banks onboard, later on third party apps such as Paytm, PhonePe, Google Pay etc. were also allowed to use UPI platform to improve its adoption. It allows you to do transactions 24*7 and currently the maximum limit is 1 lakh per transaction but it can vary from bank to bank. UPI is now India's largest retail payment system. In the month of September 2022 itself, UPI platform recorded 6.78 billion of transactions (NPCI, 2022) and yet out of these transactions, % of transactions in rural India is very low.

According to a World Bank report, about 1.1 billion people, or 2/3 of adults who are not part of the banking system, own a mobile phone. (as cited in Ferrata, 2019). Adoption of digital payments in India is primarily restricted to the urban and tech-savvy people (Singh, 2019). Although the Indian government is spending a lot on developing and implementing UPI for its inhabitants; however, the success of a particular technology ultimately depends on the user's acceptance. To ensure adoption among large population, it would be important to assess the willingness of people to adopt UPI (Chauhan, 2015; Deb & Agrawal, 2017). So, getting an insight on the factors which has influence adoption of UPI among rural population becomes very important as 65% of Indian population still lives in rural areas (Pazarbasioglu et al., 2020) and the rural share in very less in increasing UPI transactions. The adoption of digital payments among rural communities has received little to no attention in studies (Behl & Pal, 2016). So, this study addresses this gap by understanding adoption of UPI in rural locations. In March 2022, government even launched offline UPI facility for individuals without access to smartphone or internet connectivity so that even poorest of people have access to digital payments platform. But this study focuses on the UPI platform which can be used on a smartphone as the newer version of UPI was very new during data collection and people were not even aware about this.

The following sections are presented as: Section II discusses the review of literature and showcases the theoretical framework and hypotheses development for this study and then

Section III details research methodology. Section IV highlights findings & analysis of the study, in Section V discussion of the findings has been given and ultimately in Section VI conclusion has been presented.

LITERATURE REVIEW

Consumer perceptions have a profound impact on the rate of technological diffusion (Behl & Pal, 2016). Several theories have been proposed for studying perceptions of people for innovation adoption such as the theory of planned behavior, the theory of reasoned action, technology acceptance model (TAM), the motivational model, the innovation diffusion theory, the social cognitive theory and the model of PC utilization, UTAUT (Unified Theory of Acceptance and Use of Technology) etc. The two models which are used most frequently in the user technology acceptance area are TAM and UTAUT (Almarashdeh & Alsmadi, 2017; Taherdoost, 2018) which help in understanding the user perceptions towards using any technology. TAM outlines the causal relationships between system design elements, PEOU (perceived ease of use), PU (perceived usefulness), and ATT (attitude towards using a particular technology) (Davis, 1993) therefore, it is helpful to policymakers and practitioners in assessing and improving user's acceptance of technology.

UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

Venkatesh et al. (2003) evaluated eight most frequently used theories in the context of technology adoption to determine how similar and different they were and gave out comprehensive theory known as UTAUT for organizational set up, later it was upgraded to UTAUT2 in the year 2012 which was specifically focused on the consumer technology (mobile internet). Social Influence (SI), Effort Expectancy (EE), Performance Expectancy (PE), & Facilitating Conditions (FC) are four variables in UTAUT that directly influence BI (Behavioural Intention) which ultimately influences Actual Usage of technology. Several studies (Baptista & Oliveira, 2015; Gupta & Arora, 2020; Gupta et al., 2019; Kishore & Sequeira, 2016) in digital payments arena such as internet banking, mobile banking, wallets etc. have used UTAUT with some added constructs to explain the adoption. Ray et al. (2020) conducted a qualitative study among rural citizens on adoption of e-services and they found out that from consumers perspective factors such as compatibility, convenience the societal influence & value-added options came out as significant. All these aspects are well measured by the UTAUT constructs.

Meta-UTAUT

It is advisable to consider different theories together as it assists in finding out all the constructs which has impact on any subject (Hubert et al., 2019). Dwivedi et al. (2019) proposed a model combining attitude with UTAUT known as the Meta-UTAUT model (see figure 1). Attitude has a greater impact on individual intentions to perform a particular behaviour, specifically during the early stages of technology adoption (Patil et al., 2020). As adoption of UPI is in early stages in rural India, it is most suitable model to understand its

adoption among them. Meta-UTAUT assumes that to perform a specific behaviour, intentions are formed when people have positive attitude towards them, which corroborates with TRA and TAM which highlight the relationship between attitude and behavioural intention (Davis, 1993; Fishbein & Ajzen, 1975). It shows attitude construct as mediator between PE, EE, SI, FC and BI. These constructs have direct relationship and also indirect relationship with BI placing attitude as mediator. It is more comprehensive model which explains more variation in BI.

HYPOTHESES DEVELOPMENT

Performance Expectancy (PE)

People typically use a technology to the degree, they think it will aid or improve their performance (Sinha et al., 2019). "Performance expectancy is defined as the degree to which using a technology will provide benefits to consumers in performing certain action" (Venkatesh et al., 2012, p. 159). Patil et al. (2017) in their study found PE as one of the key elements driving BI to adopt digital payments. Alalwan et al. (2017) carried out research among mobile banking customers in Jordan & found a significant relationship between PE & BI. Performance Expectancy influences BI of adopting payment banks among underbanked and unbanked population of India (Gupta et al., 2019). Chauhan (2015) highlighted in her study that perceived usefulness (Similar to PE) influence attitude significantly and it is one of the strongest factors of adoption of m-money among poor people. Patil et al. (2020) and Deb & Agrawal (2017) proved the significant relationship between PE and attitude. For adoption of m-payment services among Bottom of Pyramid people from Bangladesh PE significantly influenced BI of using m-payment services (Hussain et al., 2019).

H1a: PE of Unified Payments Interface (UPI) has a positive influence on user's BI.

H1b: PE of Unified Payments Interface (UPI) has a positive influence on user's ATT.

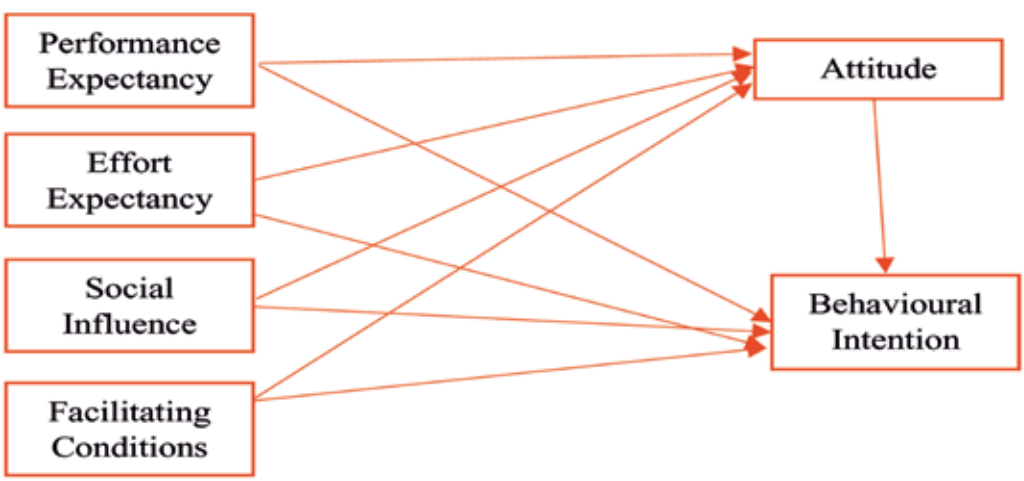

Figure 1: Research model

Source: Dwivedi et al. (2019)

Effort Expectancy (EE)

"Effort expectancy is the degree of ease associated with consumers' use of technology" (Venkatesh et al., 2012, p. 159). Ease of usage seems to be a significant element of adoption of digital payments (Gupta et al., 2019). Complexity negatively influences the adoption of innovation, it should be simple enough so that adoption rate is high (Wani & Ali, 2015). Several authors have found significant relationship between EE & BI (Hussain et al., 2019; Kishore & Sequeira, 2016; Sivathanu, 2019). Manrai et al. (2021) in their study of semi-rural Indian women found that EE is the most significant factor which determines BI of adopting digital payments. Patil et al. (2020) conducted a study in the area of mobile payments & discovered a positive relationship between EE and attitude. Lin (2011) conducted a study regarding mobile banking where EE emerged as the most significant factor in influencing attitude.

H2a: EE of Unified Payments Interface (UPI) has a positive influence on user's BI.

H2b: EE of Unified Payments Interface (UPI) has a positive influence on user's ATT.

Social Influence (SI)

"Social influence is the extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology" (Venkatesh et al., 2012, p. 159). (Okello Candiya Bongomin et al., 2018) have highlighted an important role of social networks in increasing the use of mobile money, service providers, agents should make use of these networks. Lot of researchers have given importance to social influence in adoption of technology (Almarashdeh & Alsmadi, 2017; Luna et al., 2019; Gupta et al., 2019; Kaur & Arora, 2021; Patil et al., 2020; Sobti, 2019). In rural areas lots of people are bonded together so, this construct become more important to study technology adoption (Behl & Pal, 2016). Kishore & Sequeira (2016) also found that people are somewhat influenced by friends and family when adoptiong mobile banking services. Hussain et al. (2019) conducted a study of M-payment adoption among BOP segment also found social influence as significant factor influencing BI. So, we propose that:

H3a: SI of Unified Payments Interface (UPI) has a positive influence on user's BI.

H3b: SI of Unified Payments Interface (UPI) has a positive influence on user's ATT.

Facilitating Conditions (FCs)

"Facilitating conditions refer to consumers' perceptions of the resources and support available to perform a behaviour" (Venkatesh et al., 2012, p. 159). Originally in UTAUT, it just impacted actual use behaviour but later in UTAUT 2, it has impact on BI as well as actual use behavior. It is one of the biggest facilitators in adoption of digital payments (Patil et al., 2020). Using mobile services such as m-banking etc. require some skills of using phone, internet and if external conditions such as network conditions, demos, online tutorials etc. are favourable then adoption of m-banking services becomes easy (Deb & Agrawal, 2017). Gupta et al. (2019) studied intentions to adopt payment banks services of population with limited or no access to banking of India and found FC as a significant factor. Among semi-rural Indian women, FCs found to be influencing BI of adopting digital payments (Manrai et al., 2021). Dwivedi et al. (2019) also

highlighted that it has been empirically proved that FC impacts BI as well as attitude towards adopting a particular technology. Chawla & Joshi (2020) found the relationship between FC & ATT as well as FC & BI as positive and significant. So, we propose that:

H4a: FCs has a positive influence on BI.

H4b: FCs has a positive influence on ATT.

Attitude (ATT)

Fishbein & Ajzen (1975) define attitude as "an individual's positive or negative feelings about performing the target behaviour". It plays a very crucial part in forming intentions of performing a particular behaviour (Bhuvana & Vasantha, 2021; Dwivedi et al., 2019). Chauhan (2015) proved in their study of M-money among poor people that BI to use will follow once users have attitude to use m-money. Kishore & Sequeira (2016) proved that attitude significantly impact BI of using mobile banking service among rural people of Karnataka. Similarly, Rehman & Ali Shaikh (2020) also found that attitude is one of the important aspects in anticipating an individual's intention to adopt mobile banking. There are other studies as well that support positive relationship between ATT & BI, where, attitude is influenced by several perceptions of consumers and act as a mediator between these perceptions and BI (Chawla & Joshi, 2020; Lin, 2011; Patil et al., 2020; Rana et al., 2017; Schierz et al., 2010). In this study, partial mediation has been hypothesized on the basis of Meta-UTAUT.

H5a: ATT towards Unified Payments Interface (UPI) has positive influence on user's BI.

H5b: ATT towards Unified Payments Interface (UPI) has partial mediation effect on the user's relationship between PE & BI.

H5c: ATT towards Unified Payments Interface (UPI) has partial mediation effect on the user's relationship between EE & BI.

H5d: ATT towards Unified Payments Interface (UPI) has partial mediation effect on the user's relationship between SI & BI.

H5e: ATT towards Unified Payments Interface (UPI) has partial mediation effect on the user's relationship between FC & BI.

Behavioural Intention (BI)

"Behavioural intention is defined as a measure of the strength of one's intention to perform a specific behaviour" (Fishbein & Ajzen, 1975). Behavioural Intention is influenced by different perceptions and attitude of people towards technology.

RESEARCH METHODOLOGY

Data and sample

Quantitative approach has been followed in corroboration with the past researches in the area of digital payments. Questionnaire was developed to test the constructs and data was collected from villages of Haryana. It was prepared in English language and was assessed by academicians, then it was translated into Hindi language with the help of a language experts as most of the rural people were not well-versed with English language. The questionnaire consisted two parts with 1st section dealing with demographic profile of respondents like age, gender, smartphone experience etc. The 2nd section consisted of 24 statements which were based on UTAUT original constructs and one additional construct, Attitude. These were measured on a 5-point Likert scale (Strongly Agree (1) to Strongly Disagree (5).

After questionnaire designing, a pilot study was conducted with 15 participants from a village in Haryana and then reliability & validity of the items were checked, then the items with unsatisfactory values were deleted. Then data was collected from nearby villages of Jhajjar district in Haryana using Judgement and Snowball techniques as there is lack of sampling frame. All the respondents have used smartphone which was the basic criteria for selecting respondents. Survey was administered in person using two approaches: one was online using google forms and another was pencil & paper approach. The respondents who were comfortable in filling the questionnaire online were sent google forms and others used pencil & paper. 210 people completed the survey in the month of August 2022 and eventually 195 were found suitable for the study. Table 1 summarises the characteristics of the respondents.

Demographics of the Survey Respondents

Table 1: Sample Characteristics

Demographics	Group	Frequency	Percentage
Age (in years)	< 20	30	15.4
	20-30	115	59.0
	30-40	20	10.3
	40-50	23	11.8
	Above 50	7	3.6
Gender	Male	137	70.25
	Female	58	29.75
Smartphone experience (in years)	0-1	5	2.6
	1-3	32	16.4
	3-5	40	20.5
	More than 5	118	60.5
If using UPI before Covid	No	59	30.26
	Yes	136	69.74

FINDINGS AND ANALYSIS

Partial Least Squares Structural Equation Modelling (PLS-SEM) was used to analyse the proposed model, it is a variance-based method with higher statistical power across all sample sizes. Smart PLS 3.3.9 software was used for this purpose. When using PLS-SEM to evaluate any model, according to Hair et al. (2017), a theoretical model is explained by dividing it into two parts defined as the Measurement model & the Structural model. The latent constructs and

their indicators relationship is first explained by the measurement model. Then, the relationship between several constructs represented by the structural model is examined.

Measurement Model

It is assessed using four criteria i.e., Indicator Reliability, Internal Consistency, Convergent Validity & Discriminant Validity as given by Hair et al. (2021). First, factor loadings of the items are checked to establish Indicator Reliability, which should be > .708. According to Hair et al. (2021), values between .40 & .708 can be retained if removing these do not improve the convergent validity of those constructs. Loadings of items for PE ranged from .865 to .940, for EE .913 to .941, for SI .849 to .881, for FCs .706 to .883, for ATT .838 to .916 and for BI .920 to .921. All values are well within the acceptable range accept F5 which is very close to .708, but removing this indicator does not improve convergent validity, so it has been retained.

Second, Cronbach's alpha (α) & Composite Reliability (CR) have been used to assess the Internal consistency of constructs, where their values should be above .6. Third, AVE (Average Variance Explained) is used to measure convergent validity, where acceptable value is ≥ .5 (Hair et al., 2017). All the values of α, CR & AVE are well within threshold values as shown in Table 2.

Table 2: Measurement model: Internal consistency and Convergent Validity measures

Internal Consistency			**Convergent Validity**
Constructs	α	**CR**	**AVE**
ATT	.897	.928	.765
BI	.910	.943	.847
EE	.960	.969	.861
FC	.881	.914	.681
PE	.932	.952	.832
SI	.825	.895	.740

Source: Smart PLS 3.3.9 output

Fourth, Discriminant Validity is assessed using three parameters namely, Heterotrait-Monotrait ratio (HTMT), Fornell & Larcker (1981) criterion and cross loadings. To meet the Fornell & Larcker (1981) criterion, the values in the diagonal (which represents the square root of AVE), should be more than the values of non-diagonal elements, which represent correlation between the constructs. The bold values in the diagonal in Table 3 are higher than values in non-diagonal which shows that all the constructs meet the criterion.

Table 3: Discriminant validity measures as per Fornell–Larcker (1981) criterion.

Constructs	ATT	BI	EE	FC	PE	SI
ATT	**.874**					
BI	.785	**.92**				
EE	.642	.606	**.928**			
FC	.705	.712	.763	**.825**		
PE	.606	.634	.621	.64	**.912**	
SI	.506	.481	.334	.445	.343	**.860**

Source: Smart PLS 3.3.9 output

According to Chin (1998), cross-loadings, where the indicator loadings on its own construct are higher than any other construct's cross loading is another way of establishing discriminant validity. The study also satisfies this requirement, as seen in Table 4. Then, HTMT ratio is assessed, which is regarded as the most appropriate for proving discriminant validity (Hair et al., 2021). According to, Henseler et al. (2015), if the HTMT value is below 0.9 between any two constructs, the discriminating validity is established. From Table 5, it can be deduced that HTMT values in this case are below maximum limit of .9 and discriminant validity is attained.

Table 4: Measurement model cross loadings

	ATT	BI	EE	FC	PE	SI
ATT1	.838	.603	.581	.535	.473	.398
ATT2	.916	.75	.64	.688	.586	.469
ATT3	.89	.728	.527	.646	.584	.451
ATT4	.851	.653	.49	.584	.462	.449
BI1	.707	.92	.54	.674	.568	.408
BI2	.725	.921	.539	.612	.603	.451
BI3	.735	.92	.592	.678	.58	.468
EE1	.623	.598	.922	.738	.568	.266
EE2	.567	.56	.935	.719	.563	.302
EE3	.566	.519	.941	.69	.546	.283
EE4	.598	.563	.928	.684	.593	.355

EE5	.618	.564	.913	.707	.607	.344
FC1	.566	.593	.629	.853	.536	.272
FC2	.624	.621	.81	.87	.595	.307
FC3	.608	.642	.719	.883	.644	.383
FC4	.545	.534	.559	.801	.407	.413
FC5	.56	.536	.398	.706	.434	.477
PE1	.63	.633	.603	.605	.924	.358
PE2	.503	.524	.538	.557	.917	.266
PE3	.573	.612	.582	.61	.94	.318
PE4	.484	.529	.533	.557	.865	.298
SI1	.486	.454	.329	.39	.329	.881
SI2	.437	.407	.255	.405	.279	.849
SI3	.371	.372	.274	.351	.271	.849

Source: Smart PLS 3.3.9 output

Table 5: Discriminant validity as per HTMT criterion

	ATT	**BI**	**EE**	**FC**	**PE**	**SI**
ATT						
BI	.866					
EE	.689	.646				
FC	.790	.794	.822			
PE	.653	.684	.653	.700		
SI	.582	.551	.373	.526	.385	

Source: Smart PLS 3.3.9 output

Then, the bootstrapping technique was applied to estimate the structural model which is a method of resampling where a lot of subsamples are taken from the original data, say 1000 or 5000 (Vinzi et al., 2010). As a result, the path coefficients & their significance were estimated. The path coefficients of the model are shown in Figure 2.

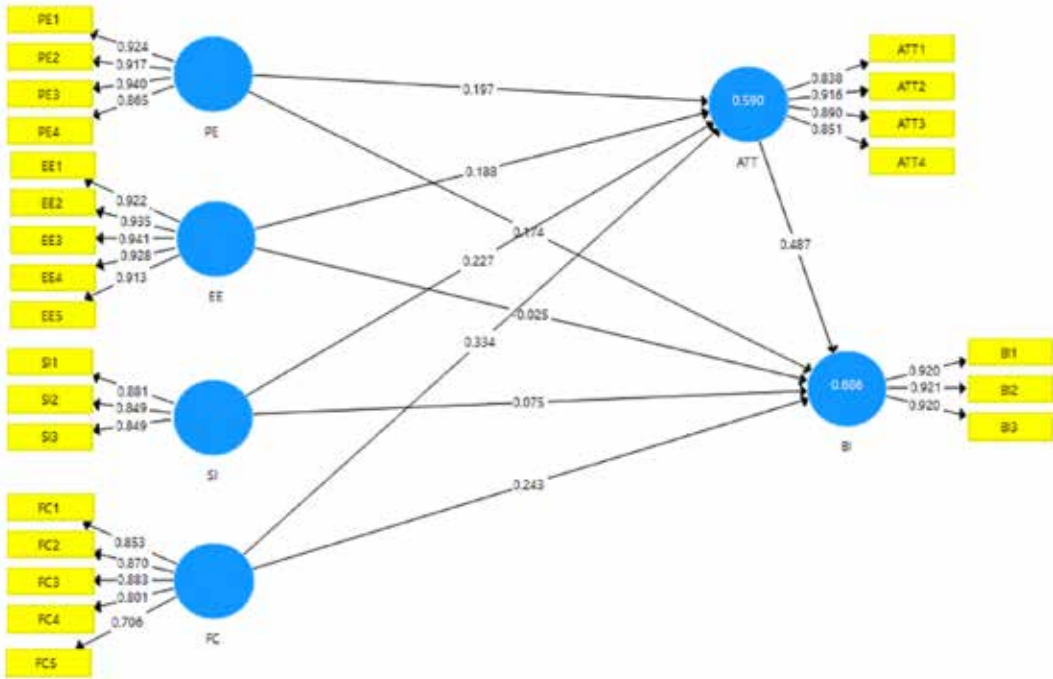

Figure 2: Structural Model

STRUCTURAL MODEL

First, to analyse structural model's multi-collinearity issue, VIF (Variance Inflation Factor) was considered for both endogenous constructs attitude and behavioural intention (see Table 6). It is seen that value of VIF varied from 1.258 to 2.901 and 1.383 to 3.174 for ATT and BI respectively. These fall below the advised (Diamantopoulos & Siguaw, 2006) threshold value of 3.33. The findings demonstrate that the present study does not encounter the significant problem of multicollinearity.

Collinearity Statistics (VIF)

Table 6: Multicollinearity measures.

	ATT	**BI**
ATT		2.442
BI		
EE	2.582	2.669
FC	2.901	3.174

PE	1.838	1.933
SI	1.258	1.383

Table 7 displays the results of structural model, including their path coefficients & one-tailed significance. To support the hypotheses, the t-standard statistic's value must be ≥ 1.96 (Hair et al., 2021) and p-value less than 0.05.

It can be deduced that out of the 13 hypotheses proposed, 9 were supported. Hypothesis namely H2a (EE has positive influence on BI) and H3a (SI positively influences B) are not significant. EE does not even have a desired positive effect but SI has desired positive effect but it is not significant. It is clear that PE positively and significantly affects ATT and BI, supporting hypotheses H1a and H1b. EE & SI are only observed to have a significant and positive influence on ATT, supporting H2b & H3b respectively. It is discovered that construct FC significantly and favourably influences BI and ATT thereby supporting H4a and H4b. The hypothesis namely H5a, ATT influences BI positively is also supported.

Table 7: Summary of structural model results.

Hypotheses	Relationship	Path Coefficient	T Statistics	P Values	Decision
H1a	PE -> BI	.174	2.949	.002	Supported
H1b	PE -> ATT	.197	2.555	.005	Supported
H2a	EE -> BI	-.025	.256	.399	Rejected
H2b	EE -> ATT	.188	2.182	.015	Supported
H3a	SI -> BI	.075	1.708	.044	Rejected
H3b	SI -> ATT	.227	4.104	.000	Supported
H4a	FC -> BI	.243	2.964	.002	Supported
H4b	FC -> ATT	.334	3.082	.001	Supported
H5a	ATT -> BI	.488	5.931	.000	Supported

Mediation Analysis

The remaining hypotheses were analysed through mediation analysis suggested by (Zhao et al., 2010). First indirect effects are checked and, in our case, these are significant, if we look at the t-statistic or p-value (see Table 8). Then direct effects are checked which are presented Table 8 (H1a, H2a, H3a & H4a). H5b (ATT has a partial mediation effect on the relationship between PE & BI) is

accepted as direct effect (H1a) as well as indirect effect (PE -> ATT -> BI) both are significant. H5c (Attitude partially mediates the relationship between EE & BI) is rejected as direct effect (H2a) is negative and insignificant and indirect effect (EE -> ATT -> BI) is significant which shows full mediation rather than partial. H5d (Attitude partially mediates the relationship between SI & BI) is rejected as direct influence (H3a) is insignificant and indirect influence (SI -> ATT -> BI) is significant which shows full mediation rather than partial. H5e (Attitude partially mediates the relationship between FC & BI) is accepted as direct effect (H4a) and indirect effect (FC -> ATT -> BI) both are significant.

Table 8: Indirect effects.

Relationship	Path coefficients	T Statistics	P Values
PE -> ATT -> BI	0.096	2.170	0.015
EE -> ATT -> BI	0.091	2.122	0.017
SI -> ATT -> BI	0.111	3.023	0.001
FC -> ATT -> BI	0.164	2.926	0.002

Source: Smart PLS 3.3.9 output

The proportion of variance explained in a structural model is based on the R2 value of each endogenous variable. Hair et al. (2021) has suggested substantial (.75), moderate (.50) & weak (.25) values of variance explained in endogenous variables by exogeneous variables. The explained variance for two endogenous variables, namely, ATT and BI were 0.590 and 0.686, suggesting satisfactory explanation of variance by dependent variables.

The predictive relevance is evaluated using cross-validated redundancy (Q2). It is calculated using blindfolding technique and values above 0 shows satisfactory predictive relevance of the model (Chawla & Joshi, 2020). Q2 values for ATT and BI are 0.442 & 0.568 respectively, which are quite satisfactory.

DISCUSSION

70.3 percent of the respondents in this study were men, and 59 percent of them were between the ages of 20 and 30. Of the respondents, 60.5% had used smartphones for more than five years. Majority (69.74%) of respondents were already using UPI before the emergence of Covid and 30.36 percent started using UPI only after the emergence Covid.

Data collected during the survey was analysed using Smart PLS 3.3.9 software. All the conditions of reliability and validity were satisfied. Reliability was checked using α & CR which were above 0.6. Convergent validity was checked using AVE where acceptable value is above 0.5 and all the AVE values in the study were acceptable. F&L criterion, cross loadings & HTMT criterion were used to assess discriminant validity and all the values of the

study were acceptable according to the given criteria.

Then, the structural model was analysed using bootstrapping technique and results of structural model showed that out of 13 hypotheses, 9 were accepted. In keeping with earlier researches, this study found that PE has significant and positive influence on BI (H1a) as well as ATT (H1b) (Alalwan et al., 2017; Chauhan, 2015; Chawla & Joshi, 2020; Deb & Agrawal, 2017; Gupta et al., 2019; Hussain et al., 2019; Kaur & Arora, 2021; Sivathanu, 2019). It means that people are using UPI as they find it beneficial to use so, government and service providers should create awareness regarding benefits and usefulness of UPI among rural people so that more people use it. Knowledge regarding benefits of UPI will help in shaping their attitude towards UPI which will ultimately influence their intention to adopt UPI (H5b). Therefore, PE is one of the crucial constructs that has an impact on BI both directly and indirectly through ATT.

With respect to hypotheses H2a, H2b & H5c which depict the influence of EE (Effort Expectancy) on BI & ATT & ATT as partial mediator respectively, it is observed that only H2b was accepted. The link between EE and BI was not directly significant which is in contrast to Dwivedi et al. (2019) findings, where there is direct positive relationship of EE on BI as well. The study confirms that EE positively and directly influences attitude towards UPI and ultimately impacts BI (Lin, 2011; P. Patil et al., 2020; Rana et al., 2017; Schierz et al., 2010). This finding is in line with Kaur & Arora (2021) and Baptista & Oliveira (2015) where these two, EE & BI, do not appear to have any meaningful direct relationships. It means that although easiness in using UPI is not directly influencing their intention to use UPI rather it is shaping their attitude first (full mediation) which ultimately influences intention. In general, EE is very important for rural people as they are less educated (Manrai et al., 2021), so, complexity can lead to non-adoption (Wani & Ali, 2015).

In this study, SI (Social Influence) was hypothesized to influence BI and ATT respectively and then ATT was hypothesized as partial mediator between SI & BI. SI has positive influence on BI but it is not significant, as supported by Alalwan et al. (2017) and Gupta & Arora (2020). SI was found to be significantly influencing ATT of rural people towards UPI which ultimately influences their intention of using UPI (Rana et al., 2017; Schierz et al., 2010). This supports only H3b, thereby rejecting H3a & H5d. It means that people in rural area are well bonded together, so their attitude towards new technology is shaped by the influence of their close ones and ultimately it affects the intention to adopt UPI. Service providers can make use of social circles and the people such as village heads etc. in promoting the use of UPI.

The importance of FC (Facilitating Conditions) was examined through H4a & H4b. H5e hypothesized that the relationship between FC & BI is partially mediated by attitude. All of these were accepted and the findings show that FC emerged as the most significant construct directly influencing user intention and attitude towards adopting UPI. Similar outcomes have been observed in earlier studies using related technologies (Chawla & Joshi, 2020; Gupta & Arora, 2020; Gupta et al., 2019; Manrai et al., 2021; P. Patil et al., 2020; Sivathanu, 2019).

Government & service providers should focus on providing facilities like proper internet facilities, online or offline trainings, workshops, customer support etc. They should encourage more and more merchants to accept UPI as payment method so that consumers adopt UPI without hesitation.

In this study, Attitude was hypothesized to influence BI (H5). The findings of the study shows that ATT significantly and positively influences BI of adopting UPI which is compatible with the findings of earlier studies (Chauhan, 2015; Chawla & Joshi, 2020; Kishore & Sequeira, 2016; Rehman & Shaikh, 2020). The findings prove that attitude is the significant factor influencing among rural people. If attitude of people is positive towards technology, then their intention of using it increases.

R2 values of endogenous constructs ATT and BI are 0.59 & .686 which shows quite satisfactory the explanatory power of the model. Q2 values (Predictive ability of the model) for ATT and BI are 0.442 & 0.568 respectively, which are quite satisfactory.

CONCLUSION

The study adopted the Meta-UTAUT to understand the adoption of UPI among rural people. FC, EE, PE & SI directly influence Attitude whereas only PE & FC have direct effect on BI. It means attitude fully mediates the effects of EE & SI on BI as they do not have direct significant impact on BI. Whereas, Attitude has partial mediation effect on the relationship b/w PE, FC & BI as they have direct as well as indirect effect (via attitude) on BI. And, the direct influence of PE & FC on ATT is strong as compared to their direct influence on BI. This study proves the importance of attitude in acceptance models as suggested by Dwivedi et al. (2019). Although all UTAUT constructs are significant and influence BI directly or indirectly via attitude. But the most critical factor amongst all is Facilitating conditions which has most significant impact on ATT as well as BI.

Policymakers and service providers should focus on shaping the attitude of rural people towards using UPI. Rural people should be made aware about benefits of using UPI through various campaigns organised at villages. They should also organise workshops in villages to teach them about using UPI in order for them to find it simple to use and feel enthusiastic about using it. More and more merchants should accept UPI so that people do not feel hesitant towards using UPI. Service providers can make use of social groups, village heads etc. to promote the usage of UPI as rural people are very much bonded together. As people are less educated in rural areas, they should be provided with proper support systems such as online or offline training videos, customer support which can aid them in using UPI.

This is a unique study which tries to understand the adoption of UPI among rural people of India, however, this study does have certain drawbacks. First, the sampling for research was done on the basis of convenience (judgement based) so, the results cannot be generalised to other rural areas. Future studies can use non-convenience sampling methods to generalise results. Second, the research used smaller sample size which are users of UPI due to non-reluctance of rural people in filling

questionnaires. Further studies can use larger sample size and can take the data from non-users. Third, this study mainly includes male and young people between 20 to 30 age group only. Further researchers can include people from diverse age groups & genders and can also see the impact of demographic variables as moderators. Fourth, research has adopted Meta-UTAUT where there are limited number of constructs which explain 68.6% variance in Behavioural Intention of using UPI so, further researchers can add more constructs such as trust, security, perceived risk etc. in Meta-UTAUT to increase its explanatory power.

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