FACTORS AFFECTING CONSUMER ADOPTION OF SMARTPHONE APPLICATIONS FOR MENTAL HEALTH AND WELLNESS: A STRUCTURAL MODELLING APPROACH

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ABSTRACT

Smartphone applications for health and wellness have substantially changed the health behaviour of users due to their unique features like accessibility, flexibility, and persuasiveness. Using mobile applications (apps) to foster mental health and wellness has attracted the interest of researchers in the recent years as there is a growing focus on mind-body wellness and people have started realising the importance of preventive behaviours and lifestyle changes. While previous research has primarily focused on fitness and physical activity apps, less attention has been paid to apps for subjective wellbeing. The purpose of this paper is to examine the factors responsible for adoption of smartphone apps for wellness in India. A quantitative research approach was used and data were collected from 267 respondents. Structural Equation Modelling (SEM) was applied in the study and the results confirmed that perceived ease of use, perceived usefulness, satisfaction, attitude and habit explained significant amount of variance in adoption behaviour.

Key words: mHealth, mental health, wellbeing, health applications, subjective wellbeing.

1.INTRODUCTION

Health is "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity" (WHO, 2006). Accordingly, mental health is not mere absence of a mental illness, but is presence of overall emotional, psychological and social wellbeing. Globally, mental health and wellness as an aspect of health have been largely ignored. But the inclusion of mental health in Sustainable Development Goals (SDGs) in 2015 shows that the world has realized the importance of mental health. WHO Special Initiative for Mental Health (2019-2023) was launched by WHO to provide care for mental health conditions in 12 countries. Prevention of mental health conditions and promotion of mental health is one the objectives of the Comprehensive mental health action plan 2013-2030 by World Health Organization (WHO, 2013).

Mental health has been documented in literature to be autogenic (Antonovosky, 1987) and maintaining a healthy lifestyle and preventing risk factors have been acknowledged as important aspects of mental health (Jormfeldt, 2011). Consequently, self-care in terms of self-monitoring and adoption of healthy behaviours have seen notable developments in the recent years. Self-care can be an effective method to foster wellness and can go a long way in maintaining and promoting mental health among healthy and at-risk individuals (Chambers, 2006). Despite being a relatively new phenomenon, use of technology for self-care has resulted in an increased number of health consumers' engagement with internet-based services for health care (Aitken et al., 2015).

Technological advances have the potential to make self-care easy and accessible to the common population. The use of technology in

health care is defined as e-health (Eysenbach, 2001). Mobile health (mHealth) refers to the use of internet based mobile devices for health and medical care (WHO, 2011). Widespread penetration of mobile phones and easy access to internet has facilitated the growth of mHealth in the recent years. mHealth apps are smart phone-based applications aiming at healthcare and are designed for many purposes such as treatment support, management of chronic diseases, tracking and managing epidemic outbreak and surveillance. mHealth represents a unique opportunity to expand the availability and quality of healthcare because the total number of people that own a smart and feature phone is 7.26 billion, making up 91.54% of the world's population and this number is growing every passing day ("Unhealthy India: The rise of lifestyle diseases in the country", 2018). According to a report by WHO (2011) the use of wireless technology can support both prevention and advancement in health and use of technology can help people better their health and wellbeing. Currently, mHealth interventions are not only limited to urban users but are also prevalent among the rural population (Venkataraghavan et al., 2021).

mHealth apps provide many types of services. Major services include diagnostic services, preventive services, and procedural services (Zhang et al., 2017). Preventive services are apps used by general public primarily for disease management and mental and behavioural health (Helbostad et al., 2017). A number of mHealth apps designed for meditation, relaxation, mindfulness, cognitive training, self-monitoring of mood and anxiety fall into this category. (Eisenstadt et al.,2021). By using these apps users can get positive health outcomes by both monitoring and managing their health (Caplan, 2021). Despite the presence of a large number of apps available for download, the adoption of such apps is limited (Kearney et al., 2012) due to many factors such as lack of awareness of mhealth apps (Kayyali et al., 2017), beliefs and literacy about mhealth apps (Shyh-Chang et al., 2013; Lin & Bautista, 2017; Alam et al., 2021). Hence more research is required to understand the adoption of mhealth apps by people.

With a steady increase in life expectancy across the globe reaching an average of 70 years, there is a high prevalence of lifestyle and stress-related diseases in India (Goyal, Chauhan & Gupta, 2021). Hence, taking preventive and innovative measures, emerge as a likely solution to compensate for the deficiencies in the Indian healthcare system gravely affecting an Indian's health (Chakraverty & Arora, 2020). With the number of smartphone users expected to rise by 84% to 859 million by the end of 2022 from 468 million in 2017, and with an increase of 15% in the downloads of mhealth apps in 2020 (Dixit & Gill, 2020), India provides a unique opportunity to promote the adoption of healthy lifestyles by using mhealth apps. Based on the review of existing literature on mhealth, it can be said that previous researches have proven the usability and feasibility of mHealth apps as effectual (Rathbone & Prescott, 2017) but lesser researches are found specifically aiming at use of mHealth apps for mental health. Most of the researches on mhealth have focused on the apps used for diagnostic purposes and medical interventions (Cipresso et al, 2012; Li et al, 2014). There are fewer researches on apps used for preventive purposes and positive lifestyle changes (Aitken et al., 2015). To the best of our knowledge, no researches on such apps have been conducted in India till date. This study aims to examine potential factors for adoption of mobile applications for self-monitoring and enhancement of mental health and wellbeing within the context of a developing economy. The main objective of this study is to investigate consumer adoption of mobile health applications for mental health.

2. THEORETICAL FRAMEWORK AND THE RESEARCH MODEL

While using mhealth apps has proven to be helpful in bringing about positive lifestyle changes, there is a lot of resistance in using these apps due to poor acceptance of technology. Since the field of mhealth is relatively new, there is a lack of researches focusing on the adoption of mhealth apps. Thus, it is imperative to understand whether it will be accepted by potential users.

Since consumer factors plays an important role in adoption of mhealth apps for mental health and wellbeing (Thimbleby, 2013), explaining

the adoption behaviour of mhealth apps is an important area of research. In order to understand the perspectives of consumers, a number of factors pertaining to technological environments and user preferences have emerged to be important (Arya, Paul & Sethi, 2021). A variety of theoretical models have been developed to explain the acceptance of mhealth apps by potential users. Technology acceptance model (TAM) (Davis, 1989) is one of the most frequently used models to explain acceptance of technology. Based on the theory of reasoned action (Fishbein and Ajzen, 1980), TAM was developed to predict the acceptability of an information system and suggests that perceived usefulness and perceived ease of use are the two main factors which shape the attitude of potential users. In India, numerous studies have used TAM to explain the consumer usage of mobile applications for various purposes like shopping (Shukla & Sharma, 2018), finance (Kumar et al., 2020), ordering food online (Tribhuvan, 2020), entertainment (Malewar & Bajaj, 2020), using Massive Open Online Courses (MOOCs) (Shah et al., 2021).

Although TAM is a well-established and highly accepted model which predicts technology acceptance, many researchers indicate that TAM needs to be extended to include additional variables that influence decision making. Researches have extended TAM to include social influence (Vannoy & Palvia, 2010), privacy and trust (Lewis & Wyatt, 2014) and technology anxiety (Mun et al., 2006). Since the current study focuses on the adoption behaviour, i.e., regular usage (Table 1) of mhealth apps, habit and satisfaction are two theoretically justified factors which are likely to increase the predictive power of the model.

2.1 Perceived Usefulness (PU): First introduced by Davis (1989), PU is 'the degree to which a person believes that using a particular system would enhance his or her job performance' and explains people's belief regarding the use of a particular technology. Major need of technology in this vast growing world is to make a task effortless for an individual and prove useful so that there is an increase in their dependence on that particular technology. Perceived usefulness has seen to be positively related with the use of mHealth applications (Vinnikova et al., 2020). Results of

systematic review done on the use of mHealth apps for fitness and physical activity show that there is a positive relationship between perceived utility of the app and the future intent to use it (Angosto et al., 2020; Habeeb et al., 2021; Poonia et al., 2021). Perceived usefulness is also seen to positively impact the adoption of mHealth apps for both young adults (Zhang & Xu, 2020) and older adults (Suh & Li, 2022). Thus it has been hypothesized as:

H1: *Perceived usefulness has an influence on attitude towards using mhealth apps*

2.2 Perceived Ease of Use (PEOU): PEOU is the belief of a user towards the ease in accessing any technology. Davis (1989) defined PEOU) as "the degree to which a person believes that using a particular system would be free of effort." For an individual PEOU is most likely to induce positive perception of using mHealth apps (Aboelmaged et al., 2021). Studies have found that both perceptual components like PEOU and emotional component like satisfaction play an important role in predicting the continuous behaviour of mHealth apps adoption (Oh et al., 2015). Thus it is hypothesized that:

H2: *Perceived ease of use has an influence on the attitude towards using mhealth apps*

2.3 Satisfaction: An individual's behaviour can be understood by satisfaction and attitude (Oliver, 1980; Jain et al., 2021). Satisfaction is defined as, "psychological or affective state related to and resulting from a cognitive evaluation of the discrepancy between expectancy and performance". When expectations are met, consumer satisfaction is evident. As seen in studies, perceived satisfaction triggers the download of mHealth apps (Smirnova et al., 2021). Previous studies have indicated that strong relationship exist between satisfaction and usage rate of mobile apps for various purposes. (Singh et al., 2017). Thus, a satisfied consumer of mHealth apps is more likely to use them and develop adoption behaviour. On this basis it has been hypothesized that:

H3: *Satisfaction from using mhealth apps has an influence on the attitude towards using mhealth apps*

H4: *Satisfaction from using mhealth apps has an influence on the habit to use mhealth apps*

2.4 Habit: "Habit is defined as the extent to which people tend to perform behaviours automatically because of past learning" (Gillan et al., 2016). Habit is found to be an important determinant in consumers' continuous use of mobile health apps. Once a mobile app is downloaded its regular use will enable adoption behaviour of that mobile app. Satisfaction and habit formation have also played a key role in the adoption behaviour of mobile apps for banking (Siyal et al., 2019). Along with various deals offered by the online market places, habit is a strong determinant of user's behavioural intent towards using a mobile application for online shopping (Tak & Panwar, 2017). Thus it has been hypothesized that:

H5: *Habit of using mhealth apps has an influence on the attitude towards using mhealth apps*

2.5 Attitude: Attitude is a major driver of an individual's adoption behaviour. "Attitude is a person's overall evaluation of performing the behaviour" (Yang & Zhou, 2011). Attitude has been found to positively impact a person's adoption of various mobile apps (Rahi et al., 2019). Attitude towards the acceptance of technology and its use in the form of mobile health application plays an important role in determining an individual's adoption of mHealth. Thus it has been hypothesized that:
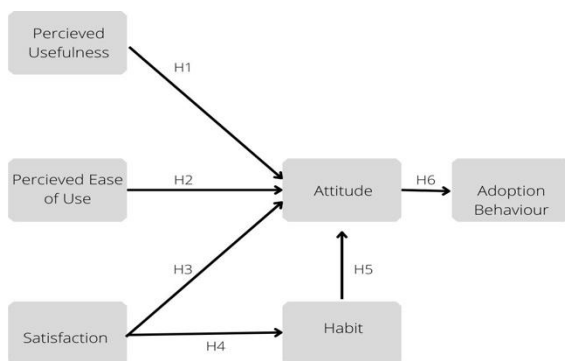
H6: *Attitude towards using mhealth apps has an influence on the adoption of mhealth apps*

Figure No. 1: Conceptual Model

Based on the review of existing literature a conceptual model (Fig. 1) was proposed to be

tested in the current study. Constructs as defined for the current study have been given in table 1

Table 1: Operationalization of constructs in the study

Construct	Definition	Source
Adoption	Using at least 1 Mental health App on regular basis.	Davis (1989)
Perceived Usefulness	Belief that using mobile applications will be useful for an individual's mental health.	Davis (1989) Palos-Sanchez et al. (2021)
Perceived Ease Of Use	Belief that using mobile applications for an individual's mental health will be easy.	Davis (1989) Palos-Sanchez et al. (2021)
Satisfaction	Perception of fulfilment of one's requirement and expectations from the use of mHealth App for mental health.	Bhattacherjee (2001) Streichan (2020)
Attitude	An individual's thoughts and feelings towards using mobile application for mental health.	Davis (1989) Palos-Sanchez et al. (2021)
Habit	Habitual usage of mHealth apps for mental health	Venkatesh et al. (2012) Wu et al. (2022)

3. RESEARCH METHODOLOGY
3.1 Sample and Procedure
The target population for the current study were users of mobile applications for mental health. Data were collected through a self-administered online survey (Arya et al., 2019; Hanaysha et al., 2021). Cross-sectional survey design was used to collect data through anonymous Google Forms using non-probability purposive sampling method (Sharma et al., 2021, 2022a, 2022b). Purposive sampling is the most suitable technique as it helps to select the respondents who are suitable to fulfil the objectives of the current study (Sharma et al., 2022b). The online survey was publicised on social networking platforms (Facebook, LinkedIn, WhatsApp, Instagram,

twitter etc.) and shared through emails (Arya et ., 2018; Rashid et al., 2022). Prior to the participation, the respondents read the cover letter which informed them about the purpose of the research and completion of survey implied informed consent. Participation was voluntary and anonymous.

Mobile applications for mental health and wellbeing were defined for the respondents. The form was designed in such a manner that only participants who were active users of such applications were able to complete the form. The questionnaire was filled by 415 people. 55 questionnaires were excluded from the sample due to missing and incomplete data. The remaining 360 responses were further screened for alertness. The questionnaire had an embedded item which read "This item checks whether you are reading the items carefully before answering. Please choose 'do not agree' as your answer to this question". 93 responses failed this check and were excluded from the final sample. Researcher was left with 267 responses for further analysis. Sample characteristics have been given in table 2.

Table 2: Demographic Features of the Sample

	Characteristic	n	%
Age (In Years)	18-44	108	40.44
	45-59	97	36.34
	>=60	62	23.22
Sex	Male	166	62.17
	Female	101	37.82
Current Status	Student	63	23.59
	Employed	96	35.95
	Home Maker	65	24.34
	Retired	43	16.10
Highest Educational Qualification	Secondary	43	16.10
	Senior Secondary	79	29.58
	UG and above	145	54.30
Marital Status	Married	115	43.07
	Single	152	56.92
Domicile	Rural	92	34.45
	Urban	175	65.54

3.2 Questionnaire Development
The six constructs of the study were measured by a total of 24 items. All items were adapted from the existing literature to fit the context of the current study and were rated on a five-point Likert scale ranging from "strongly disagree" scored as 1 to "strongly agree" scored as 5. 4 items each to measure perceived usefulness (PU) and perceived ease of use (PEOU) were adapted from Davis (1989). 4 items to measure satisfaction (S) were adapted from Bhattacherjee (2001). 4 items to measure habit (H) were adapted from Polites (2009) and Alalwan (2018). Attitude towards adoption (AA) and adoption behaviour (AB) were measured using 4 items each developed for the purpose of the current study.

Questionnaire used for the study had three sections. Section one consisted of filter questions to ensure the appropriateness of the sample. Section two measured the constructs (PU, PEOU, S, H, AA and AB) of the study. Pilot testing of the questionnaire was done on 30 respondents to check the quality and clarity of questions. The responses were also reviewed by experts before finalising the questionnaire.

3.3 Data Analysis
The study used IBM SPSS to analyse the descriptive data. Structural equation modelling (SEM) was used to test the research hypotheses and validate the proposed model. SEM provides the flexibility to test models with multiple predictors and criterion variables based on latent variables (Chin, 1998). SEM is a powerful technique to analyse the dependencies of latent variables, thus allowing to analyse the relationships among constructs after avoiding the measurement error (Nachtigall et al., 2003). Analysis was carried out in two steps as prescribed by (Anderson & Gibering, 1988). In the first step CFA was done and the scale reliability and validity were established. Fit of the structural model was assessed in the second step. To assess the fit of the measurement model the following indices were used: Comparative fit index(CFI), Tucker-Lewis index (TLI), root mean square of approximation (RMSEA) and normed chi-square (χ^2/df). CFI and TLI are acceptable if more than .90 (Hair et. Al., 2006). RMSEA is acceptable at less than .07 (Hair et. al., 2006), and χ^2/df must be less than 5 to be acceptable (Wheaton et al., 1977).

4. RESULTS
4.1 Descriptive Statistics
Mean, standard deviation (SD) and inter-construct correlations were calculated for the

obtained data. Table 3 shows the descriptive statistics. There is a positive correlation among

standard was confirmatory factor analysis (CFA). CFA is done to verify the underlying

Table 3: Descriptive Statistics

	Construct	Mean	SD	1	2	3	4	5	6
1	PU	3.98	1.04	-	.465**	.301**	.441**	.509**	.498
2	PEoU	4.01	1.13		-	.358**	.403**	.412**	.386**
3	S	3.74	0.94			-	.427**	.511**	.482**
4	H	3.57	1.01				-	.213*	.512**
5	AA	3.58	0.93					-	.531**
6	AB	3.38	0.95						-

the constructs. Perceived usefulness, perceived ease of use, satisfaction, habit and attitude towards adoption are significantly positively associated with adoption behaviour.

Table 4 shows the various apps used by the participants for the purpose of maintaining

factor structure of observed variables. All factor loading values are more than .60 (Table 5) as recommended by Chin (1998). Secondly, reliability was assessed through Cronbach's α and composite reliability (CR). Cronbach's α provides a measure of the internal consistency

Table 4: Popular apps used for mental health

S. No.	Name of the app	Used for	n	Percentage (%)
1.	Sattva	Meditation	86	32.20
2.	Sadh guru App	Meditation , Gratitude	74	27.71
3.	Calm	Relaxation, Meditation, Happiness, Gratitude and Mindfulness	55	20.59
4.	Headspace	Meditation, Mindfulness and Relaxation	52	19.47
5.	Think Right. Me	Meditation, Mindfulness and Affirmations	32	11.98
6.	Cult Fit	Yoga and Meditation	24	8.98
7.	Art of Living	Yoga, Spiritual music, meditation, radio, lifestyle tips, wisdom and life hacks	13	4.86
8.	Buddhify Me	Mindfulness and Relaxation	11	4.11

their mental health wellbeing through methods of meditation, relaxation, mindfulness etc. the number of participants using each app are also mentioned which depicts the popularity of every app amongst the population sample. The most popular app as reported by the sample was Sattva, used for meditation. Results also reveal that most of the people use apps for meditating and practicing, relaxation and gratitude.

4.2 Measurement Model

The measurement model was evaluated based on reliability and convergent validity prior to hypotheses testing. To test the measurement model three standards were used. The first

of a test or scale for all the items is more than the acceptable value of .70 (DeVellis et al., 2003). CR provides a measure of convergent reliability of the constructs. The values obtained for CR for all the constructs is higher than the acceptable value of .60 (Bagozzi & Yi, 1988). Thirdly, average variance extracted (AVE) was calculated to measure the amount of variance measured by the construct relative to the variance caused by the measurement error (Fornell & Larcker, 1981). As shown in table 5 all values of AVE were more than 0.50 (Fornell & Larcker, 1981). Measurement model indicates an acceptable fit ($\chi2 /df= 2.495$; RMSEA = 0.049; GFI = 0.91; CFI = 0.92)

Table 5: Results of Measurement Model Analysis

Construct	Item	Factor Loading	Cronbach's α	CR	AVE
Perceived Usefulness (PU)	1. Using Mobile Applications for Mental Health improves my performance in managing my Mental Health and Wellness	.835	.76	.748	.952
	2. Using Mobile Applications for Mental Health helps me in saving time to maintain my health and well being	.894			
	3. Overall use of Mobile Applications for Mental Health are useful in managing my overall health	.859			
	4. Use of Mobile Applications for Mental Health enhances my productivity	.910			
Perceived Ease of Use (PEoU)	1. Mobile Applications for Mental Health are easy to use.	.855	.88	.829	.931
	2. I feel comfortable in using Mobile Applications for Mental Health	.921			
	3. It is convenient to use Mobile Applications for Mental Health .	.902			
	4.I know how to use Mobile Applications for Mental Health	.931			
Habit (HA)	1. Use of Mobile Applications for my Mental Health has become a Habit for me.	.856	.84	.910	.892
	2. It is normal for me to use Mobile Applications for my Mental Health.	.873			
	3. I regularly use Mobile Applications for my Mental Health.	.901			
	4. I feel my day is incomplete without using Mental Health Mobile Applications	.872			
Satisfaction (S)	1. I feel satisfied with the use of Mobile Applications for my Mental Health	.814	.81	.884	.902
	2. I feel contented with the use of Mobile Applications for my Mental Health	.886			
	3. I feel happy using Mobile Applications for my Mental Health	.893			
	4. I believe I did the right thing by using Mobile Applications for my Mental Health	.808			
Attitude Towards Adoption (AA)	1. Using Mobile Applications for Mental Health is a wise idea.	.784	.92	.823	.872
	2. Using Mobile Applications for Mental Health is a pleasant experience.	.869			
	3. I think using Mobile Applications for Mental Health would be convenient for me	.793			
	4. Mobile Mental Health Applications have the features I require	.803			
Adoption Behaviour (AB)	1. I intend to use Mobile Applications for my Mental Health rather than discontinuing its use	.843	.83	.862	.853
	2. My intentions are to continue using Mobile Applications for my Mental Health rather than any alternative means.	.915			
	3. I would like to continue the use of Mobile Applications for my Mental Health as much as possible.	.745			
	4. I will recommend people around me to use Mental Health Applications on their mobile.	.816			

4.3 Structural Model

After testing the goodness of the measurement model, path analysis was applied to test the hypotheses. Table 6 shows the results of hypothesis testing. It was hypothesized that users' adoption of mobile application for mental health and wellbeing is influenced by attitude towards adoption, which in turn is influenced by perceived utility of mobile applications, perceived ease of use, satisfaction derived from using such applications and habit of using them (as shown in figure 1). Results indicate that the impact of perceived utility, perceived ease of use and satisfaction on attitude towards adoption is significant.

The path coefficients for the impact of satisfaction upon habit and habit upon adoption behaviour are also significant. Attitudes towards adoption have a significant impact upon adoption behaviour. However, the impact of habit upon attitude towards adoption is not significant. The model showed an adequate fit: χ^2/df= 2.71; RMSEA = 0.052; GFI = 0.92; CFI = 0.94). The model explained 58% of variance in attitude towards adoption of the target behaviour and 73% of variance towards adoption of mobile applications for mental health and wellbeing.

Table 6: Results of Hypothesis Testing

Hypothesis	Relationship	Std. β	t-statistics	Hypothesis Supported
H1	PU➔AA	0.344	5.832	Yes
H2	PEoU➔AA	0.401	6.386	Yes
H3	S➔AA	0.263	4.843	Yes
H4	S➔H	0.214	4.162	Yes
H5	H➔AA	0.102	1.685	No
H6	H➔AB	0.479	6.947	Yes
H7	AA➔AB	0.432	6.543	Yes

5. DISCUSSION

The result of this study confirmed that consumer's adoption behaviour of mobile application for the purpose of fostering and maintaining their mental health and wellness is importantly determined by attitude and habit of an individual. First hypothesis states a positive effect of Perceived Use on Attitude, Hence, it can be said that an individual's view of efficient useability of a mental health app will positively impact their attitude towards its use. Based on the findings of this research, perceived usefulness directly impacts an individual's attitude towards the usage of

these apps (β=.0.344, t= 5.832). Consumers are more likely to adopt a behaviour which they assess useful to them. Findings are consistent in previous studies done in similar contexts of mHealth apps (Vinnikova et al., 2020) and use of smart wearables (Rani & Chu, 2021). Thus, we can argue that an individual will adopt mHealth Apps for mental health if it is believed to be useful.

Hypothesis second states a positive impact of perceived ease of use on an individual's attitude towards the mHealth Apps. Results of this research show that PEOU amplifies positive attitude towards the use of mHealth Apps (β=0.401, t=6.386). This finding is consistent with earlier researches (Palos-Sanchez et al., 2021). An individual's intentions to use mHealth Apps are dependent on the ease they recognize in performing any behaviour and once performed with ease chances of continuing the behaviour are increased (Akdur et al., 2020). Hence, we can predict that users' assertion that mobile apps for mental health support and wellbeing, are easy to use, will promote adoption behaviour. The results of H1 and H2 are consistent with previous studies (Shemesh & Barnoy, 2020; Siyal et al., 2019) which depicts PU and PEOU have strong impact on individual's attitude which further impacts their behavioural intention and adoption of mHealth apps for wellbeing.

The current research also studied emotional component like satisfaction and behavioural factor like habit to fill in the important gaps in understanding consumers' adoption of mHealth apps for mental health.

Correspondingly, third hypothesis is, satisfaction from mHealth Apps positively impacts attitude towards the use of mHealth Apps. From the results of this research it can be rightly said that if one's wishes, needs and expectations are fulfilled from the mHealth Apps they will form a positive attitude towards it. It is seen in previous researches on user behaviour that satisfaction strengthens the positive effect of past behaviour on attitudes (Ertz & Sarigöllü, 2019).

In the fourth hypothesis satisfaction has significant direct effect on habit. It can be deduced from the findings of this research that if consumers feel contend and satisfied their

chances of adopting mental health wellness apps will increase. Satisfaction positively impact habit formation of any behaviour (Hsiao et al., 2016). Results of several studies on technology use and habit reveal that using technology becomes a habit once a consumer is satisfied with the use (Wang et al., 2013).

In fifth hypothesis as mentioned in this paper, Habit positively impacts the attitude towards the use of mHealth Apps. An interesting finding of this study was the insignificant impact of habit on consumer's attitude towards adoption behaviour. This result finding can be explained on the basis of overriding nature of habit. If the individual establishes a habit of doing something, it might directly lead to adoption (Amoroso & Lim, 2017). Habit has shown to have a significant impact on the adoption behaviour, various researches on consumer adoption of mHealth demonstrate that in their results. (Wu et al., 2022; Birkmeyer et al., 2021).

In the sixth and last hypothesis of this research paper, attitude is stated to have a significant positive impact on the adoption behaviour of an individual towards the use of mHealth Apps. A positive attitude towards any product will eventually attract it's probable adoption by the people. If a person finds mHealth app useful, feasible and satisfactory they will have a highly positive attitude towards it, which will eventually lead to adoption of mHealth App by them. This research is in line with many of the previous researches done on the use of mobile apps for health purposes (Palos-Sanchez et al., 2021) (Ertz & Sarigöllü, 2018).

The overall model proposed in the current study shows a good fit and 58% variance in adoption of mHealth apps by the users.

5.1 Theoretical Implications:
The study was an attempt towards testing the adoption of mHealth apps by individuals, using TAM model. Along with TAM, variables like satisfaction and habit are also incorporated in this conceptual model (Fig1) as these variables were seen to strongly impact attitude and behaviour intentions in previous researches. (Ertz & Sarigöllü, 2018 ; Verplanken & Aarts, 1999) The result of this research revel that perceived ease of use, perceived usefulness and satisfaction significantly impact the attitude of an individual towards using mHealth Apps.

Attitude further positively impacts the behaviour intention of an individual to actually adopt using these apps. These results are in line with previous researches done on use of mobile apps for banking (Bhatt, 2021) and food delivery (Song et al.,2021). The results of this hypothesis testing report that habit does not have a significant impact on attitude formation, but has significant positive impact on behaviour adoption. This finding is similar to many previous researches in similar context. (Verplanken & Aarts, 1999).

This study contributes to the available literature on use of technology for mental health purposes in context of emerging Indian market for the need of mental health support. TAM since the day of its inception has been of interest for researches to understand the use of technology in various context: payment (Bailey et al., 2022), shopping (Vărzaru et al., 2021) , social media (Al-Qaysi et al., 2021), entertainment (Bhatt, 2021), food delivery (Song et al., 2021) and many more, but very few have used it to comprehend the use of mHealth apps for mental health especially in Indian setting.

5.2 Managerial Implications:
The results of this study give an insight that habit, attitude and perceived ease of use are major predicators of adoption behaviour of mHealth apps by an individual developers must keep in mind the ease of using the app. An app could be made easy to use with enabling user friendly app design and having the app in some major local languages, these are a few ideas which can be incorporated in a mHealth to make it more accessible. In addition to this, company owners can ensure that the apps developed must be advertised in the way, that it forms a positive attitude in consumer's mind so as to promote it's adoption by the people. The manger can also provide in app purchases as free trials initially so that consumers develop a habit of using these mHealth apps. Satisfaction and perceived usefulness also positively impact an individual's attitude which determines the adoption behaviour by consumers of mHealth apps, thus the content of these apps must be result oriented which provide satisfactory changes in one's wellness and it is felt to be useful by the consumer.

The results of this study will help the company owners and mangers to devise structured plans for both consumer experience and product marketing of mHealth Apps for mental health and wellness. Various factors affecting consumer adoption of mHealth apps have been discussed in this research paper, if one keeps in mind the various factors determining the adoption of mHealth apps, there is high probability of more consumer adoption of these apps.

5.3 Limitations and future scope:
This study like all other studies is bound by some limitations. Current study has extended TAM model with habit and satisfaction. A similar extension can be considered by future researchers with factors like internet penetration, price value etc. Along with this future research can study moderating effect of age and gender on the adoption of mHealth apps. This study is conducted on the sample selected from India a similar study can take place in another developing nation to understand the situation of developing countries in context of mHealth adoption for their mental health and wellness.

6.Conclusions
Results of current study with 267 Indian participants indicate that the six important constructs play an important role in determining individual's adoption behaviour towards use of mHealth apps for mental health. An individual's usage behaviour of mobile apps for mental health is a blend of their thinking, perception and emotion. Perceptual component like Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) have a significant role in positively impacting adoption behaviour of individuals toward using a mobile application for mental health, by having a direct relation in forming a positive attitude. Emotional component like satisfaction and attitude are corelated and help an individual in forming positive adherence to adoption behaviour of mental health through Apps. Cognitive component like habit directly impacts adoption behaviour towards the use of mHealth Apps for mental health and wellbeing. An individual's Habit and their Attitude directly impact adoption behaviour. Thus, we can conclude that consumer behaviour towards the use of technology for their mental health wellness is strongly dependent on their perception of usability and

ease. It is also dependent on their level of satisfaction from past experience, attitude formed and habit of regular use.

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