

Culture, emotion, and the connected patient: Understanding IoT healthcare adoption

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Abstract

The paper examines the main drivers of Internet of Things (IoT) services to identify them and present insights on the adoption in the healthcare industry in India, considering both supporting and inhibiting factors. Data were gathered with the help of an online survey of hospital patients across the country. Using SEM (structural equation modeling) and for path analysis we used PROCESS macro, the findings indicate that cultural values strongly affects individual's motivations for IoT adoption, shaping their attitudes, and their behavioral intentions toward IoT-based healthcare solutions. The analysis shows that motivational conditions and the intention to implement IoT technologies are mediated by the attitudes. However, the emotional intelligence did not have a statistically significant effect on attitude and intention relationship. This research finds major obstacles to the adoption of IoT, including the levels of technology complexity and fears of data security challenges, which may not allow users to adopt them. These concerns can be reduced because, by doing so, it will close the gap between positive attitudes and actual use. This study provides a fresh perspective by combining cultural and behavioral factors such as positive and negative motivations, attitudes, and intentions related to IoT adoption in healthcare. It also notices the role of emotional intelligence as a moderating factor, which is an understudied factor in this field. Additionally, it supports the use of Behavioral Reasoning Theory as a conceptual lens for understanding consumer decision-making in the realm of IoT-enabled healthcare.

Keywords: Internet of Things (IoT), Healthcare Adoption. Behavioral Reasoning Theory (BRT), Cultural Values, Emotional Intelligence, Attitude and Behavioral Intention, Motivational Factors

JEL Classification: I11,I15,L63,M15

1. Introduction

The current technological changes like Internet of Things (IoT), Artificial Intelligence (AI), robotics, and Chabot are transforming the service delivery and management operation in healthcare (Pradhan et al., 2021). The Internet of Things (IoT) aims to provide globally interconnected systems network with the capabilities of transferring data to one another by virtue of the advanced communication systems. The possibility and scalability of implementation of IoT has greatly increased in terms of several industries using the technological advancements of recent years (Zikria et al., 2021). Among the expected outcomes, IoT is projected to offer transformative benefits to the digital ecosystem. It is interesting to note that the sphere of healthcare, especially within the context of personalized and connected care, can benefit significantly due to an implementation of IoT technologies in the nearest future. The IoT in healthcare allows accommodating several smart services in remote patient detection, smart medical devices, automated management in a hospital, wearable health tracker, telehealth solutions, the elderly care system, emergency alerts and personalized treatment techniques, connected implants, and data-driven analytic sequences (Kanakaprabha et al., 2024). These innovations contribute towards increasing efficiency, patient care and overall healthcare experience.

A growing number of studies highlight cultural values as important determinant of how people accept, adopt and use new technologies including the Internet of Things (IoT) (Alsamarah et al., 2023; Hsu & Lin, 2018; Negm, 2023; Ronaghi & Forouharfar, 2020). Cultural plays an important role in shaping patient's perception, trust, and behavioral intentions towards IoT adoption (Zhang et al., 2022). Earlier research on IoT in healthcare has mainly focused on factors like perceived usefulness, ease of use, and user attitudes offering essential insights into the decision-making processes of healthcare consumers (Arfi et al., 2021; Hasan et al., 2023; Pan et al., 2019). Therefore, it is essential to understand when and why patients and healthcare providers choose to adopt IoT, as well as the factors for its successful implementation. While known models like the Theory of Planned Behavior (TPB), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), and Diffusion of Innovation (DOI) have given basic insights into how people adopt new technology, they also have been criticized for ignoring why some people resist it. This gap is important because as the drivers of adoption and the sources of resistance are often different and affect healthcare decisions in unique ways.

To fulfil this gap, we use Behavioral Reasoning Theory (BRT) to investigate all the supporting and countering motives behind the IoT adoption in the healthcare field. Such dual-lens methodology allows understanding user behavior more commonly through consideration of how enabling and inhibiting beliefs construct cultural values, attitudes, and intentions. Also, the paper presents the importance of emotional intelligence moderating role in these relations, giving new knowledge about the influence of emotional sensitivity on the behavior of technology adoption in healthcare environments.

The study collected data from a sample of 418 healthcare patients in India and analyzed using structural equation modeling. In the present paper, the above approach is done in five major parts that include an introduction, literature review and theoretical background, hypothesis development, empirical analysis, and discussion of findings with strategic recommendations to future research and practical implementation to the health care setting.

2. Literature Review

2.1 Behavioral Reasoning Theory

Behavioral Reasoning Theory (BRT) helps explain how reasons, values, motivations, and behavioral intentions can be understood in the context of decision-making (Ahmad & Harun, 2023). According to BRT, while positive factors (such as perceived benefits) can clarify why individuals choose to engage in certain behaviors, they do not account for why some may resist those same behaviors. To address this, highlights the importance of identifying both encouraging and discouraging reasons behind behavioral decisions. These subjective reasons vary and are influenced by how individuals interpret their own values and beliefs. Reasons serve as a bridge, influencing attitudes in a complementary way and helping explain decisions in situational or contextual choices. BRT distinguishes between long-standing values and beliefs which are deeply rooted and persist over time and reasons, which are more immediate and relevant to specific decisions (Palmer, 2025). These elements collectively influence global motives, reasoning processes, and anticipated behaviors.

BRT has found application in various domains to understand consumer behavior in consumption, adopting innovation, alcohol consumption, entrepreneurship, mobile banking and policy implementation (Choudhary et al., 2025; Gupta & Arora, 2017; Rasheed et al., 2023; Sahu et al., 2020; Sahu et al., 2022). In the healthcare, specifically for IoT adoption, BRT suggests that cultural values shape both positive and negative motivations. This motivation then influences user's attitudes and intentions. Attitude affects intention, while reasons (for and against) influence both attitudes and intentions directly and indirectly. Also, reasons acts as mediators between cultural values and attitudes or intentions. Emotional intelligence on the side of customers may also act as a moderator in this model, determining the intensity of the relationships between reasons, attitude, and behavioral intentions. People with higher emotional intelligence are more emotionally aware, they can better handle doubts or concerns about using healthcare IoT (Paul et al., 2025; Satamraju & Balakrishnan, 2022). This moderating effect helps in understanding how consumers weigh the benefits and risks of new technologies in emotionally sensitive areas like healthcare.

2.2 Hypothesis Development

2.2.1 *Cultural values affecting reasons*

Behavioral Reasoning Theory (BRT) is a model that has been developed in an effort to explain the process by which humans develop intention and end up performing actions (Dhir et al., 2021).

Cultural values are the philosophical beliefs and emphasis that people have and which determine personal conducts, likes and dislikes, as well as decision-making processes (Weber & Hsee, 2000). Concerning technological utilization, such values strongly influence the way the rest of the population justifies, takes up and uses technology advancements. In the healthcare context, cultural values significantly influence how individuals perceive the benefits of IoT technologies such as improved health monitoring and convenience so strengthening reasons for adoption (Alraja et al., 2019). At the same time, these same cultural values might increase concerns about data privacy, security, or loss of human touch, thus increasing reasons against adoption. Based on these dynamics, the following hypotheses are proposed:

H1a. The perceived benefits of adopting IoT technologies in healthcare have a positive correlation with cultural values in healthcare

H1b. There is a positive relationship between cultural values and consumer intentions to use or adopt IoT-integrated health care services.

2.2.2 Intentions and attitudes influenced by culture values

Extensive prior researches have demonstrated a consistent association between values, attitudes, and behavior, with the direction of causality generally flowing from values to behavior (Alzaabi et al., 2023). In the technology adoption domain, cultural values influence the way individuals assess and emotionally respond to new systems. Values serve as deep-rooted guiding principles, and their influence on attitude formation is particularly significant in contexts that involve uncertainty or risk, such as IoT adoption in healthcare. For example, empirical research indicates that personal and cultural values positively shape consumer attitudes towards organic food consumption, sustainable products, and technology (First & Brozina, 2009). The following hypothesis has emerged from this discussion.

H2. Attitude towards adoption of IoT has a positive relationship with cultural values held by consumers.

H3. The cultural values have a positive relationship with consumer intentions of adopting or use of IoT-based healthcare technologies.

2.2.3 Attitude affecting intentions

Quite a substantial body of academic literature exists regarding the existence of positive relation between consumer attitudes and their behavioral intentions. According to the Theory of Planned Behavior, holds that attitude towards a given action by an individual is what defines the determination of such a person to execute the action (Ajzen, 1985). In the case of environmental sustainability, also discovered that individuals, whose views held acceptance on e-waste recycling, had a higher likelihood of engaging in the recycling process.

Relating these findings to the domain of healthcare, it can be assumed that those individuals that have a positive perception of IoT-based healthcare services (or, in other words, remote monitoring and wearable health technologies) are more prone to using them (Rodić et al., 2024). These favorable perceptions are usually achieved due to the ease of use, safety, better health conditions, and customization that results in a stronger intention to behave. Based on this rationale, the following hypothesis is proposed:

H4. There is a positive relationship between consumer's attitudes and their intention to adopt and utilize IoT healthcare services.

A positive tendency in developing customer attitudes towards using IoT healthcare services and their desire to access and use them also exists.

2.2.4 Influence of Motivational Reasons on Attitudes and Intentions

This phenomenon has been recurrently demonstrated in the past by showing that reasons of engaging in a behavior are of huge importance when it comes to consumer decisions in many contexts. These are positive rationales of perceived convenience, perceived health benefits, perceived efficiency or perceived innovation which are the facilitators which reinforce the favorable attitudes and the motivation to pursue the behavior. Behavioral Reasoning Theory postulates that, reasons in favor and oppose of a behavior will be treated as context-specific beliefs which act as mediating mechanisms between the involvement of global values in attitudes and intentions (Chatterjee et al., 2022). Numerous studies consistently have affirmed that "reasons for" positively correlate with attitudes toward new technologies while "reasons against" correlate negatively with attitudes and intentions due to concerns like perceived risks, privacy issues, and loss of control. In the domain of IoT in healthcare, while research on adoption drivers is increasing, relatively fewer studies have investigated barriers and resistance, despite their critical role in shaping consumer perceptions. These "reasons against"—including data security, mistrust in technology, or fear of medical errors can result in negative attitudes and resistance to use. Drawing on this understanding, the following hypotheses are formulated:

H5a. There is a positive relation between favorable attitudes and positive consumer motivations to adopt or use IoT healthcare services.

H5b. Unfavorable attitudes toward the adoption of IoT in healthcare are positively correlated with negative consumer motivation (or deterrents) toward IoT healthcare adoption.

H6a. The willingness of consumers to adopt AI-based healthcare technologies is linked positively with their desire to use IoT healthcare services.

H6b. There exist negative correlations between consumers concerns or deterrents to IoT services and the intention of consumers to use IoT-enabled health services technologies.

2.2.5 Mediating Role of Motivational Reasoning

Earlier research underscores the critical role that reasoning plays in shaping consumer behavior, particularly when new technologies are involved. According to Behavioral Reasoning Theory (BRT), individuals rely on situation-specific justifications referred to as reasons which act as mediators between high-level constructs like cultural values and outcomes such as attitudes and behavioral intentions. Empirical evidence verifies that justifications of a behavior as well as justifications against a behavior act as filters through which people can scrutinize the compatibility of a specific behavior with his/her personal values. These reasons later influence their attitudes to the behavior. In the context of healthcare IoT adoption, individuals weigh both benefits—such as ease of use and improved health outcomes and drawbacks such as privacy risks and mistrust. These assessments are utilized to mediate between the values and attitudes of the culture they represent in a refined way of how the systems of values become translated into perception and behaviors of consumers. In accordance with this conceptual reasoning, it may be postulated that the next hypotheses occur:

H7a. Cultural values have positive consumer motivations to adopt IoT healthcare services which mediate consumer attitudes.

H7b. The association between cultural values and attitudes has a negative influence through the variables of the negative consumer motivation towards adoption of IoT.

H7c. Culture Values and intention to use IoT-enabled healthcare services are mediated by positive motivations of adoption..

H7d. The negative motivations (reasons against) to adopt IoT services acts as mediators to reduce the relationship between values of cultures and intentions to adopt IoT-driven healthcare solutions.

2.2.6 Attitude as a Mediating Construct

Extant research on technology adoption, particularly within the context of IoT services, has predominantly focused on individuals' behavioral intentions rather than their actual behaviors. This discrepancy is often attributed to situational factors such as availability of infrastructure, financial constraints, or regulatory limitations can disrupt the translation of intention into behavior. Nonetheless, behavioral intention is widely accepted as a key antecedent of future action and is often used as a reliable proxy for actual behavior in empirical studies. Specifically, a consumer's intention to adopt IoT-based healthcare solutions (e.g., smart wearables, remote monitoring systems) is indicative of their likelihood to engage with such technologies when circumstances permit. And also prior studies, e.g. suggest that attitudes considerably influence intentions, as the latter in turn lead to actual consumer behavior. From this theoretical framework, the research hypothesis at hand is as follows:

H8a. Attitude of the consumers plays a positive mediating role between cultural values and their willingness to use or even adopt IoT based services.

H8b. There is a positive mediation relationship between consumer motivations and their attitude to adopt services of IoT.

H8c. Consumer attitude to adoption of IoT services negatively mediates between the factors that cause resistance and the intention that they would adopt or use IoT services.

2.2.7 Moderating Effect Emotional Intelligence as a Moderator between Adoption Motivations and Adoption Intention

Emotional Intelligence (EI) may be described as the ability in an individual to identify, recognize and comprehend both personal emotions, as well as those of the other people and to adapt and control them. EI is a significant variable in consumer decision-making process, which influences the behaviors of individuals consuming technological services and technological products, more so in emotionally charged settings such as healthcare. Recent research demonstrates that emotional factors—such as empathy, anxiety, and the ability to regulate emotions are positively associated with attitudes, behavioral intentions, and actual use behavior of healthcare-related IoT technologies. To illustrate, emotionally intelligent individuals can react to uncertainty much better, cope with fear of what may happen to their data, and be sure in the use of new technologies. Additionally, studies have shown that emotional intelligence serves as a positive moderator between key constructs in behavioral models. Therefore, it has been observed that EI enhances the influence of attitude, perceived behaviors control and subjective norms over purchase intentions of the consumers when it comes to healthcare IoT technologies. This indicate that emotionally intelligent individuals are more likely to convert favorable attitudes into strong adoption intentions. Based on this theoretical foundation, the following hypothesis is proposed:

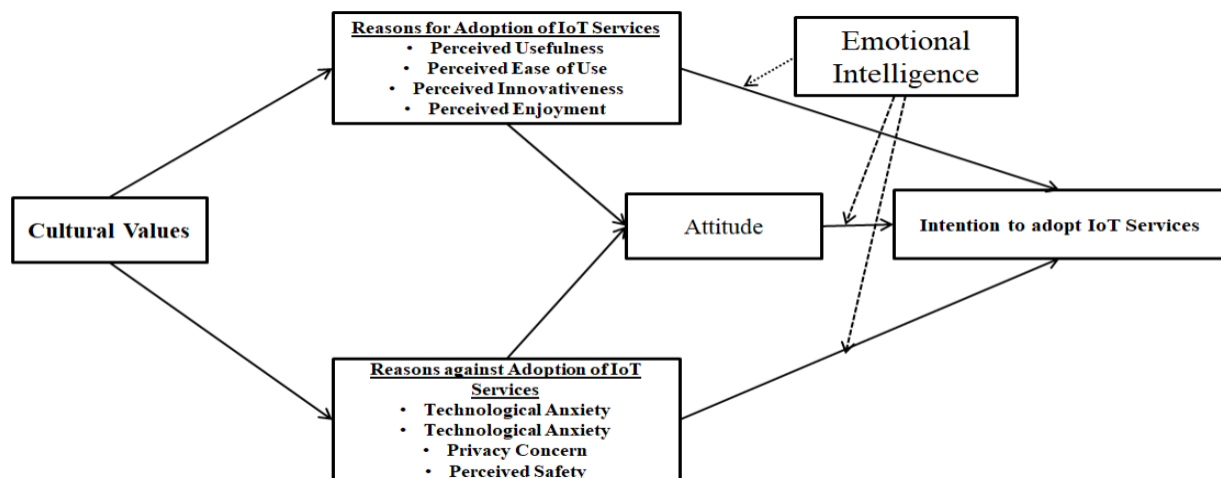
H9a. EI Moderates the relationship consumer motivations to adopt and their intention to use IoT healthcare services.

H9b. EI weakens the relationship of adoption barriers on consumers' intentions to utilize IoT-based healthcare services.

H9c. EI increases the positive relationship between consumer attitudes on their intentions to adopt or use IoT healthcare services.

This conceptual framework illustrated in *Figure 1* is developed based on the aforementioned hypotheses.

Figure 1. Conceptual Framework



3. Method

This study is based on the positivist research methodology with its emphases on objectivism, empiricism, and use of scientific inquiry. Positivist position argues that reality is objective, measurable and it can be analyzed using the systematic methods of formulated methodologies. In the scope of the theoretical perspective of determining the consumer adoption of IoT services in the area of healthcare, based on this paradigm, the hypotheses are examined and the cause and effect relationship between the theoretical constructs are established based on the methods of the quantitative research. To collect the data, a self-administered questionnaire that was both structured and in English was developed, with measurement items that were reliable and those that were adapted by validated measurements at the literature available. Through Google Forms, the survey was sent to future consumers of healthcare services provided by the IoT in India. The identification of the data was conducted within 2-month, May-June 2025.

3.1 Sample

The study focused on individuals in India who have prior experience with IoT healthcare devices. A survey was used online through Google survey to reach out to this group. Statistical procedures of sample size were adhered to in order to come up with a representative sample. The calculation of the minimum required size of the respondents demonstrated that, with the confidence level as 95% and maximum sampling error as 5% the minimum required sample was calculated as 382 respondents. After screening and validation of data on completeness and consistency, a total of 418 valid responses remained to be selected in the final analysis hence giving usable response rate of 92.3%. Such sample is sufficient to perform variance-based structural equation modeling (SEM) that is preferable to models that have complex relationships and latent constructs in exploratory situations.

Some of the control variables that were considered in the analysis include gender, age as well as educational qualification which are demographic variables. The creation of descriptive statistics was carried out with the help of SPSS; hypothesis testing was conducted on SmartPLS v. 4. The distribution of the participants in terms of gender is presented in Table 2, age of respondents is provided in Table 3 whereas Table 4 outlines the type of education among the participants.

3.2 Measurement Instrument

The survey instrument was subdivided into two main parts first section was to record the demographical data, which was used as controlled variables in the study, such as gender, age, and the level of education. The second section included 50 items in measuring the constructs that were accommodated in the conceptual model (e.g., cultural values, reasons to/better not adopt, attitudes, behavioral intention, and emotional intelligence). All the items had been adopted in previous studies and have been validated and were contextually adjusted to fit in the context of IoT adoption in healthcare. The answers were also ranked on a five-point Likert scale (1 to 5) where the respondents described how they agreed by responding to a given statement. The list of all the items used to conduct the measurements in this study is given in Table 5.

3.3 Assessment of Reliability and Validity

This research study used validated questions in the literature in an effort towards measuring constructs across precision and reliability. The aim was to establish the validity and reliability of the instrument based on psychometric tests using convergent and discriminant validity, factor loadings, average variance extracted (AVE), Cronbach alpha (CA) and composite reliability (CR) according to recommendations of the literature. As you can see in Table 6, all the constructs have achieved the required criteria of reliability and validity. The AVE values were between 0.681 and 0.866, which is much higher than 0.50, the symbol of a decent convergent validity, and this fact affirms that the convergent validity is acceptable. The CR scores were 0.905 to 0.970, which implies that there is a good level of internal consistency and reliability at the scale level and CR scores of 0.905 to 0.970, indicating a strong internal consistency and reliability at the scale level and Cronbach alpha (CA) values were between 0.902 to 0.967. All factor loadings exceeded 0.70, satisfying the minimum requirement of 0.60 for convergent validity. According to, CR values between 0.806 and 0.970 indicate robust internal consistency and reliability. Research also suggests that CA and CR values above 0.90 but below 0.95 reflect strong reliability without redundancy. Reverse-coded items in the questionnaire were adjusted during data processing to ensure scale consistency, which enhanced the alpha reliability coefficients. Although high CA and CR values are achieved, high values (beyond 0.95) are concerning as they may indicate item redundancy or over-fitting, which implies that items are showing too much overlap. In these situations, the process of refining measurement scales is to be encouraged so as to increase generalizability and validity of the construct. Finally, AVE values between 0.681 and 0.866

indicate that all the latent constructs capture an adequate portion of variance compared to measurement error, which proves the overall validity of the model once more.

4. Results

Normalization of data before estimating the model was also tested by performing the test based on said values of skewness and kurtosis of each of the observed variables. The calculated values of the skewness and kurtosis statistics fell within the range of -1 to +1, indicating that the measured data sufficient to be in a normal distribution so that the structural equation modeling (CB-SEM) could be performed successfully.

CB-SEM helped to test and support the hypotheses about the interrelationships defined in the theoretical framework since it can be used in a confirmatory and explanatory research. Also, the Confirmatory factor analysis (CFA) was performed to evaluate the convergent and discriminant validity in six latent constructs. The goodness of the model-data fit was good with the fit indices as shown in Table 1 in the CFA results.

Table 1. CFA Model Fit Indices

χ^2	3347.724
Df	1136
CFI	0.927
SRMR	0.061
RMSEA	0.053

Notes: RMSEA-Root Mean Square Error of Approximation, SRMR- Standardized Root Mean Square Residual, CFI- Comparative Fit Index, Df- Degrees of freedom, χ^2 - Chi-square

All factor loadings were significant ($p < 0.001$ level) and with value greater than 0.70, showing good convergent validity. In addition, the average variance extracted (AVE) values of each of the items were more than 0.60, which confirm these findings .To establish discriminant validity, the Fornell-Larcker criterion was applied. As shown in Table 7, the square root of each construct AVE was higher than its correlations with other construct, confirming good discriminant validity for all six dimensions.

4.1 Hypothesis Testing

To validate the hypotheses formulated in the study, the presented hypothesis will be tested using the PROCESS macro technology provided by Hayes, which is a powerful tool based on ordinary

least squares (OLS) regression. PROCESS can be used to examine the direct, indirect (mediated), and moderator effects and it can also be used to examine models with multiple mediators or moderators in serial as well as parallel models. It also enables probing of interaction effects using simple slopes and regions of significance techniques. The direct effects of the study variables are presented in Table 8. The indirect (mediation) effects are reported in Table 9. The moderating effects of emotional intelligence are shown in Table 10 (Reasons for Adoption $\times$ EI), Table 11 Moderation Effect (EI between Adoption Barriers and Intention to Adopt IoT Services), and Table 12 Moderation Effect (EI between Attitude and Intention to Adopt IoT Services).

Table 2. Gender Distribution of Respondents

Valid	Frequency	Percentage (%)
Male	259	62
Female	159	38
Total	418	100

Table 3. Age of Respondents

Valid	Frequency	Percent
<25 years	97	23.20%
25–35 years	63	15.07%
36–45 years	227	54.30%
>45 years	31	7.41%

Table 4. Education profile of the respondents

Valid	Frequency	Percent
HSC	54	12.91%
Intermediate	97	23.20%
Bachelors	112	26.79%
Masters	142	33.97%

5. Discussion

This research examines how people in India adopt IoT-based healthcare services, using Behavioral Reasoning Theory (BRT) as its guiding framework. It explores how cultural values affect their reasons for and against adoption, and their attitudes toward IoT healthcare technologies. The model also evaluates how these reasons affect consumers' behavioral intentions to use IoT. The data were obtained from a sample of 418 Indian respondents and analyzed using the PROCESS macro tool in SPSS 29.

The findings confirm the assumed relationship in hypotheses H1a, H2, and H3 that cultural values have a positive impact on motivations, attitudes, and intentions of the people to use IoT innovations in healthcare. However findings for Hypothesis (5a) and Hypothesis (6a) that reasons in favor of adoption significantly boost both positive attitudes and the willingness to use IoT devices for improved healthcare delivery. BRT substantiates the mediating relationship between reasons and the relationship between CI and BI. Conversely, H5b and H6b suggest that opposing reasons negatively affect attitudes and intentions toward adopting AI-based healthcare services, which is consistent with previous literature.

Table 5. Measurement Items

Construct	Items	Question (With Modifications)
Collectivism	UA1	I prefer using IoT healthcare services recommended by my family or close friends.
	UA2	I would rather make decisions about adopting new health technologies together with my family than alone.
	UA3	I feel responsible for how my use of IoT healthcare devices affects my family's well-being.
	UA4	My community's opinion influences whether I adopt new healthcare technologies.
	UA1	I feel uncomfortable using IoT healthcare services when I don't have

Uncertainty Avoidance		complete information about how they work.
	UA2	I prefer detailed guidelines and instructions before starting to use new healthcare devices.
	UA3	I am reluctant to try IoT healthcare devices if their performance is uncertain.
	UA4	Having clear rules and standards makes me more willing to adopt new healthcare technologies.
Masculinity	MA1	In my view, adopting new healthcare technologies is a way to show strength and determination.
	MA2	Achieving success in managing my health with IoT devices is more important to me than maintaining harmony with others.
	MA3	Competition to have the latest healthcare technology motivates me to adopt new devices.
Perceived Ease of Use	PEU1	I find IoT healthcare devices easy to operate.
	PEU2	I would find it easy to adopt the use of IoT healthcare services.
	PEU3	I can quickly become skillful at using IoT devices for health monitoring.
	PEU4	I would find it convenient to learn the use of IoT devices every time I intend to use the devices.

Perceived Enjoyment	PE1	I find using IoT healthcare devices enjoyable.
	PE2	The process of using IoT healthcare services is pleasant.
	PE3	Using IoT healthcare devices provides me with a sense of enjoyment.
Perceived Innovativeness	PI1	I think IoT healthcare devices are innovative solutions for managing health.
	PI2	Using IoT healthcare services represents a modern way of taking care of one's health.
	PI3	I perceive IoT healthcare services as cutting-edge technology.
Technological Complexity	TC1	Applying IoT healthcare devices would demand much of mental effort.
	TC2	IoT healthcare devices seem complicated to use.
	TC3	Using IoT devices for health monitoring would involve complex procedures.
	TC4	The steps required to set up and use IoT healthcare devices are confusing.
Technological Anxiety	TA1	I feel nervous when I think about using IoT healthcare devices.
	TA2	Using IoT technology for health monitoring makes me feel uneasy.

	TA3	I am afraid I might make mistakes when using IoT healthcare devices.
	TA4	I get anxious when I have to use new technology to manage my health.
Perceived Safety	PS1	I believe using IoT healthcare devices is safe for my health.
	PS2	I am confident that IoT healthcare devices will not cause harm to my body.
	PS3	I feel secure when sharing my health information through IoT devices.
	PS4	I believe IoT healthcare services protect me from risks associated with incorrect health data.
Privacy Concern	PC1	I am concerned that my personal health data may be misused in case I use IoT medical devices.
	PC2	I worry that unauthorized people might access my health data through IoT devices.
	PC3	I feel uneasy about sharing my health information with IoT healthcare services.
	PC4	I am concerned that IoT healthcare companies may share my health data without my permission.
Attitude	AT1	I like the idea of using IoT technologies to manage my health.

	AT2	Using IoT healthcare services would be a positive experience for me.
	AT3	Using IoT healthcare devices would be beneficial for me.
Customer Emotional Intelligence	CE1	I can recognize my emotions when deciding whether to use new healthcare devices.
	CE2	I am aware of how my feelings about technology influence my decisions about health devices.
	CE3	I can stay calm when learning to use new IoT healthcare technologies.
	CE4	I can quickly recover emotionally if I encounter problems using IoT healthcare devices.
Intention to Use of IOT	IoT1	I would like to adopt the option of IoT healthcare devices frequently in future.
	IoT2	I plan to use IoT healthcare services whenever they are available.
	IoT3	I will also attempt to monitor my health using IoT healthcare devices.
	IoT4	I am willing to use IoT healthcare services as part of my healthcare routine.

The research also indicates that mediating role (H7a, H7d) of consumer reasoning (against and for) contributes to understanding the influence of the cultural values of attitude and intendment of using IoT. Attitude itself is also a mediator between values reasons and intentions (H8a-H8c) . It was established that based on the relationship between the reasons and the intention to use of IoT services, the CEI has a positive influence on it (H9a and H9b). The existence of H9c however was

not justified which means that attitude and intention to adopt IoT services within the health sector was not given any significant contribution by the emotional intelligence.

5.1 Theoretical Implications

The study will add value to the knowledge on the choices that people adopt to deploy stay in the care industry. It is the first work basing on the empirical study, which researched the role of personal values, perceived barriers, and resistance in the intention of adopting IoT services. By applying Behavioral Reasoning Theory (BRT) within the healthcare context, the research extends the theoretical boundaries of prior studies, particularly in the Indian setting. The integration of BRT offers new insights by highlighting the dual role of context-specific reasons—both for and against adoption in shaping Indian consumers' decisions to engage with or avoid IoT technologies.

Table 6. Reliability and Validity

Variables	Items	Factor Loadings	Cronbach's Alpha	CR	AVE
Cultural Values	CV1	.853	.908	.911	.694
	CV2	.793			
	CV3	.721			
	CV4	.727			
	CV5	.794			
	CV6	.785			
	CV7	.751			
	CV8	.747			
	CV9	.795			
	CV10	.969			
	CV11	.974			

Reasons for Adoption		RFA1	.823	.945	.928	.782
		RFA2	.783			
		RFA3	.872			
		RFA4	.852			
		RFA5	.872			
		RFA6	.897			
		RFA7	.838			
		RFA8	.873			
		RFA9	.841			
		RFA10	.823			
		RFA11	.833			
		RFA12	.876			
		RFA13	.832			
Reasons Adoption	Against	RAA1	.833	.965	.968	.681
		RAA1	.790			
		RAA2	.720			
		RAA3	.742			
		RAA4	.792			
		RAA5	.812			
		RAA6	.832			
		RAA7	.858			
		RAA8	.811			

		RAA9	.768			
		RAA10	.833			
		RAA11	.819			
		RAA12	.806			
		RAA13	.845			
		RAA14	.835			
Attitude		ATT1	.852	.851	.912	.772
		ATT2	.922			
		ATT3	.915			
		ATT4	.772			
Customer Intelligence	Emotional	CEI1	.836	.894	.897	.810
		CEI2	.886			
		CEI3	.899			
		CEI4	.832			
		CEI5	.864			
Intention to Adopt/Use IoT Services		AIS1	.912	.908	.921	.863
		AIS2	.866			
		AIS3	.911			
		AIS4	.921			

The findings show that consumer-specific factors, especially cultural values, play a big role in the adoption process. For healthcare providers using IoT technologies it's important to understand and respect customer's diverse cultural backgrounds, as these values significantly influence perceptions of IoT. Additionally, this study looks at the moderating role of customer emotional intelligence a key but often overlooked crucial factor. These findings suggest more research is

needed in different cultural and regional populations to deepen the understanding of IoT adoption dynamics in healthcare settings. Figure 2 shows Interaction Effect between Adoption Drivers and Intention to Adopt IoT Services and figure 3 shows Moderating Effect (EI on the Relationship between Barriers to Adoption and Intention to Use IoT Services)

Table 7. Mean, standard deviation & correlation matrix

	Mean	SD	1	2	3	4	5	6	7	8	9
CV	3.82	1.04	0.011	0.11	-0.002	0.671					
RFA	4.23	1.08	0.061	0.015	0.057	0.004	0.825				
RAA	1.98	0.92	-	0.067	0.23	0.074	-0.006	0.007	0.82		
ATT	3.59	1.11	0.002	0.06	-0.073	0.007	0.005	-0.006	0.826		
CEI	4.20	1.17	0.035	-0.034	-0.063	0.004	0.007	0.007	0.005	0.8	
IoTS	4.19	1.23	0.061	0.014	-0.15	0.004	0.005	-0.005	0.005	0.004	0.923

Table 8. Direct effects

Path	Estimate	P Value
CV → RFA	.465	.000
CV → RAA	.537	.000
CV → A	.232	.000
RFA → A	.113	.006
RFA → A	-.423	.000
A → AIS	.102	.003
RAA → AIS	-.243	.002
RFA → AIS	.432	.000

CV → AIS	.352	.008
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Table 9. Indirect effects

Path	Indirect effect	95% Upper Limit	CI	95% Lower Limit	CI	p-value	Decision
CV→RAA→ A	.124	.134		.095		.003	Supported
CV→RFA→AIS	.254	.215		.135		.012	Supported
CV→A→AIS	.132	.225		.085		.000	Supported
CV→RAA→AIS	.112	.122		.025		.034	Supported
RAA→A→AIS	.122	.223		.152		.014	Supported
RFA→A→AIS	.054	.123		.127		.000	Supported
CV→RFA→A	-.026	.034		.005		.002	Supported

Table 10. Moderating Effect

Outcome: AIS	β	p
Reasons for adoption x Patient Emotional Intelligence	.112	.002
Patient Emotional Intelligence	.131	.023
Reasons For Adoption	.363	.004
Constant	3.215	.000

Figure 2. Interaction Effect between Adoption Drivers and Intention to Adopt IoT Services

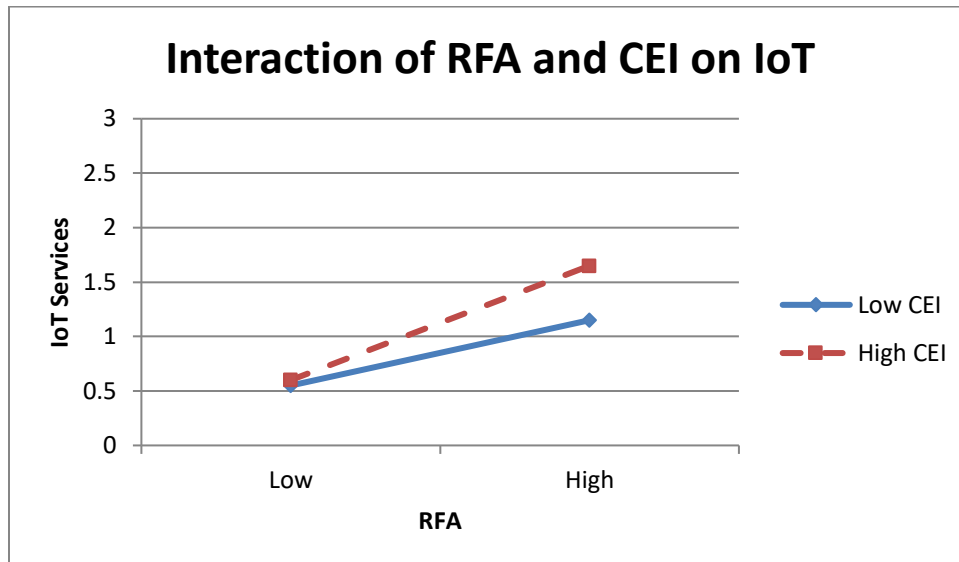


Figure 3. Moderating Effect (EI on the Relationship between Barriers to Adoption and Intention to Use IoT Services)

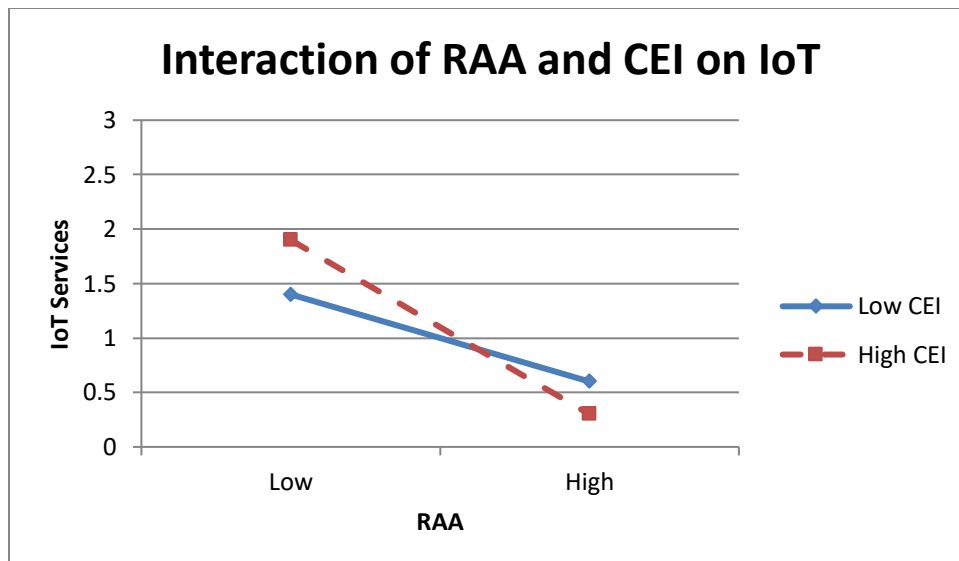


Table 11. Moderation Effect (EI between Adoption Barriers and Intention to Adopt IoT Services)

Outcome: AIS	β	p
Reasons against adoption x Customer EI	-.312	.002
Customer EI	.021	.023
Reasons For Adoption	.363	.004
Constant	4.015	.000

Table 12. Moderation Effect (EI between Attitude and Intention to Adopt IoT Services)

Outcome: AIS	β	p
Attitude	.332	.002
Customer EI	.141	.003
Attitude x Customer EI	.363	.004
constant	4.115	.000

5.2 Practical implications

Practice Healthcare managers, practitioners, and marketers too can use the findings of this research to good effect by using or marketing IoT technologies. With the proliferation of the IoT in the global health care sector, it is possible that a lot of professionals might be tempted to think that the users would share common cultural values, whether those are the patients or the staff. However, using and acceptance of IoT in healthcare depends on diverse cultural, regulatory, and organizational factors that can vary significantly across regions. However, assuming everyone shares same cultural values can be misleading. It is important to study cultural orientations which allows for a more accurate understanding of their preferences and expectations. The practitioners who remain sensitive to shifts in the cultural preferences stand better chances of performing well and receiving positive feedbacks in various market conditions.

In this study, it was found that the intricacy of technology and safety are the biggest obstacles to the IoT services adoption in a healthcare environment. These concerns can be addressed directly, which would allow reducing the current disparity between the customer attitudes and behavioral

intentions, leading to their reduced resistance to IoT adoption. By minimizing these obstacles, policymakers and practitioners may improve the acceptability of the emerging technologies.

Using IoT-driven technologies in the healthcare industry greatly improves the overall customer experience. For example, tools such as chatbots can quickly and accurately give responses to customer inquiries, while AI tools can suggest personalized services to individual. Additionally, automating tasks like bookings and check-ins can make things run more smoothly which boost operational efficiency and lead in reduction of staff workload, so human resources can focus on more complex and high-value tasks. These changes not only improve efficiency but also help in reducing cost by lowering labor requirements and optimizing energy consumption.

Ethical concerns are increasingly relevant, however, as the number of the IoT users is increasing. Organizations need to ensure that data used in training IoT models are generated in a legislative manner and that technology are exercised in a fair and nondiscriminatory way. Not only do the businesses that use the IoT technologies intensify their service delivery, but also they reinforce their competitive edge within an industry which is facing an extremely active change of shape.

6. Conclusion

Applying IoT in health industries can be of great opportunities but there also are challenges associated with its implementation that should be carefully planned before its application. The paper at hand has provided a clear and detailed framework of being capable to comprehend what drives the development of favorable and unfavorable consumer attitudes of welcoming IoT adoption in the realm of healthcare. On the one hand, the IoT technologies have the potential to enhance patient experience and reduce the costs of running the modern healthcare system besides enhancing the effectiveness of services provided by the system in question. But before using IoT solutions, it's important to carefully consider both the benefits and risk. Therefore, any decision to implement IoT systems should involve a careful evaluation of both the potential benefits and associated risks, alongside a deep understanding of the expectations and concerns of healthcare providers.

6.1 Limitations and Future Research Directions

This study also has some limitations. The data was collected using an online questionnaire, from a small group of respondents who already had experience with IoT technologies within healthcare settings. Additionally, the research is limited to the Indian healthcare system, where cultural values, technological trust levels, and patient expectations may influence adoption. So the results may not apply to all. To achieve a more comprehensive perspective on IoT adoption, future studies should compare cross-cultural comparisons that examine how perceptions and attitudes differ around the world. The benefits of IoT in healthcare are commonly discussed in most of the existing literature whereas its disadvantages do not attract much attention. Additional investigation requires focusing on matters, including job loss and less face-to-face patient care. Using mixed-methods

can help better understand capturing the complexity of consumer decision-making regarding IoT adoption.

Future research should focus on ethical concerns also. This involves looking how IoT adoption might impact on job security, data acquisition and its use, and potential biases in healthcare delivery. Studying these areas will help make sure that technological advancements align with social responsibility.

Future studies should explore at what specific motivations and barriers influences IoT adoption in underserved or rural healthcare environments, as these settings may show different patterns of consumer behavior. They should also study how these factors interact with cultural dimensions and examine differences impact IoT across various healthcare systems. Future studies are recommended to incorporate additional moderating factors that include product credibility, trialability, and consumer trust in product features in order to improve its prediction and analysis in theoretical robustness. Lastly, intermingling Behavioral Reasoning Theory and other theories which have been in the existence for many years (e.g. Technology Acceptance Model or Innovation Diffusion Theory) would help in integrating better and actionable suggestions. This may assist healthcare leaders in developing effective strategies of promoting the use of IoT to healthcare settings.

Declaration

Informed Consent: This study involved human participants; however, formal written informed consent was not required as the research was based on a voluntary, anonymous questionnaire with minimal risk to participants. Participation was entirely voluntary, and respondents were informed about the purpose of the study, their right to decline or withdraw at any time, and the confidentiality of their responses. No personally identifiable information was collected, and all data were analyzed in aggregate form.

Declaration of Competing Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability Data will be made available on request.

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