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INVESTIGATING ACCEPTANCE OF TELEMEDICINE SERVICES AMONG THE POPULATION OF PAKISTAN THROUGH AN EXTENDED TECHNOLOGY ACCEPTANCE MODEL (TAM)

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Abstract

Telemedicine is a renowned name in the healthcare market for faster diagnosis and easy accessibility to healthcare services. Telemedicine acceptance needs to be understood under the context of TAM which helps to understand the role of in-person visits compared to online visits. It is also helpful in exploring the idea that how It is also helpful in exploring the idea that how the user experiences can be supportive in facilitation projects perceived useful in facilitation projects under perceived usefulness and perceived ease of use. The study aims to review the telemedicine acceptance under the TAM to identify the barriers and understand how technological support can be there in revealing the needs of users to increase the applicability of telemedicine. The study has adopted a primary quantitative plan to conduct the data collection and analysis process. The data has been collected from online respondents having an experience with telemedicine in some way. The sample is comprised of 100 people online filling out the Google survey form which is closed-ended. The data has been retrieved in an Excel sheet which has been further explored with the help of smart PLS software. The output helps contrast the variables and summing of the hypothesis. It has been concluded that telemedicine acceptance has increased with time under perceived usefulness. However, some technological and communication barriers need to be addressed to increase telemedicine acceptance as identified by TAM.

Keywords: Telemedicine, TAM, Acceptance, Perceived Use, Perceived Ease of Use.

1. INTRODUCTION

Telemedicine acceptance model elaborates that there is a need for the adoption of telemedicine technology for the users in healthcare and other services. The use has been supported by the perceived usefulness and perceived ease of use based on the specific model introduced as the TAM technology acceptance model (Kamal et al., 2020). The value is important in the context of the model because it constructs trust and security for the users where social influence and quality of care have been justified by the success rate of increasing users in the telemedicine services exploration in Pakistan, a developing country in Asia. The study investigates how the user experience plays an important role under the privilege of trust building and infrastructure development to understand the use of telemedicine applications and technology support in the daily use of health and care departments.

2. PROBLEM STATEMENT

With the digital role of various departments, it has been found that healthcare support should be exploring the ideas of digital platforms to facilitate the patients and make sure that they are receiving services at their doorstep (Walczak et al., 2022). There is a need to review the importance of the perceived usefulness of remote consultations that can help the users understand the need for telemedicine and explore the trust in facilities availing from distance areas. The study investigates the topic based on the role of clear communication and privacy policies, which is helpful in interpreting the idea of how social influence has been there for applying testimonials and positive feedback from patients to explore telemedicine services online in Pakistan. There is a need to understand how the technology can be facilitated in rural as well as urban areas to support telemedicine uses (Chan et al., 2022). This is why the study focuses on understanding the technological barriers to the facilitation of infrastructure in rural areas especially with the help of TAM so the regulatory and legal challenges could be met to compensate the users and make sure that enhanced user experience has a positive and professional role in the encouragement of telemedicine uses.

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Aim and Objectives

The study aims to review the acceptance of telemedicine services under the framework of TAM to offer improvement plans and forecast better approach use in the context of telemedicine facilitation in Pakistan. The main objectives are:

- Evaluation of perceived usefulness to determine the enhanced role of healthcare delivery under the privilege of telemedicine services under TAM with better outcomes in Pakistan
- Reviewing the role of perceived ease of use to identify the user needs and navigator technical and training support to encourage ease of use in Pakistan
- To analyses the behavioral intentions of users for willingness to explore telemedicine services and forecast better plans to adopt the services in Pakistan

Research Questions

- What is the perceived usefulness of determining the enhanced role of healthcare delivery under the privilege of telemedicine services under TAM with better outcomes in Pakistan?
- How the role of a perceived ease of use can help to identify the user needs and navigator technical and training support to encourage ease of use in Pakistan?
- Which behavioral intentions of users can help support a willingness to explore telemedicine services in Pakistan?
- What telemedicine planners can forecast better plans to adopt the services in Pakistan?

Hypothesis

The hypotheses are as under:

- Telemedicine use has a positive impact on the quality of healthcare of users in Pakistan
- Telemedicine has a positive impact on the recovery daily routine of users in Pakistan
- Telemedicine has a positive impact on users to interact with doctors in Pakistan
- Telemedicine service's trustworthiness has a positive impact on the satisfaction of users in Pakistan
- Telemedicine increasing use has decreased the percentage of healthcare problems by resourcefulness service effective use in Pakistan

Significance of Study

It has been found that telemedicine is a new topic that needs to be reviewed with the innovative application of TAM where relevant quality of care parameters should be applied to understand the perceived use and quality service support in Pakistan. Previous literature has some analysis to measure the likelihood of long-term adoption of telemedicine; however, it has been found that there is a need to review the topic with in-depth analysis to identify its social impact and recommended strategic outline for the acceptance of telemedicine under the privilege of TAM. Previous studies have analyzed reviewing the need for telemedicine and its implications for its usefulness (Chan et al., 2022; Kamal et al., 2020). The literature lacks extensive analysis to understand the role of TAM in the context of infrastructure development and trust building. The present study is significant to understanding the need for a behavioral intention and quality of care provision for the perceived accessibility under the privilege of trust and security development. The research is also significant for understanding the healthcare experiences of users and understanding how the additional construct can help reveal the user interfaces and meet the barriers, especially in rural areas.

3. LITERATURE REVIEW

Theoretical Foundations

The Tam model offers a root booster framework for dealing with telemedicine acceptance among the population in a country. Major impacting factors include social context, health beliefs, trust concerns and technological innovation that fits to adopt the model among the population. The theoretical foundations for the use of TAM concern in Pakistan can be executed with the help of diffusion of innovation theory (DOI), theory of planned behavior (TPB) and uniformity of acceptance of the use of technology (UTAUT). DOI theory explains the innovation and adopting attitude of people to explore a new idea for compatibility where it fits the health systems in a country (Liu et al., 2023). The theory explores the liability ideas where opportunities can be tested with the adoption of telemedicine under the privilege of competition and innovation applications. The theory can be tested in the current analysis TAM and acceptance offer people to understanding the trust in technology and confidence to use quality of care services.

The other theory is TPB where psychological intentions are explored to understand the behavior of users. The community belongs to a developing country where awareness of internet needs to the community belongs to a developing country where awareness of Internet needs to be supported with the attitude towards telemedicine and the development of trust with the organizations (Li et al., 2024). The model has been tested in the current study to support the attitude towards behavior and social pressure on telemedicine companies. Further, it is also executing the perceived behavior control to explore telemedicine and support people to modify their behavior according to the needs of modern technology applications and accessibility to online services.

The third theory is exploring unification for acceptance and exploration of technology under the title of UTAUT. Here the social influence has been compatibly supported with the facilities provided to the people. It is bridging the connection of society like family and peer groups for health services to facilities like resources and infrastructure to use telemedicine (Mukherjee, 2021). Keeping in view the needs of the users the two main factors have been tested Keeping in view the needs of the users the two main factors have been tested in this

context including PU as perceived usefulness for the users where they understand the enhancement of health care experiences with efficient outcomes. The theories also analyses PEOU for the perceived ease of use to understand the behaviors of people for the trust concerns in telemedicine to explore the services online.

Perceived Usefulness (PU)

The perceived usefulness executes the idea of how the TAM can be applicable in the context of meeting specific challenges in a developing country. Shoukat et al. (2023) reviewed that the idea addresses the healthcare gaps in the rural areas where infrastructure has been aligned with qualified healthcare professionals to assess the healthcare units and make sure that rural support has been facilitated in Pakistan. The approachable role of cost-effectiveness can be outlined in this context where users will be able to have in-person visits online to reduce the travel cost. Pakistan is a developing country and most people are not able to afford the travel expenses to visit a doctor that is having a clinic in another city (Tariq & Iqbal, 2023). The perceived usefulness can support the idea of how improved health outcomes can be facilitated in the form of awareness campaigns. The role of successful telemedicine cases including Sehat Kahani helps understand how the perceptions of utility have been explored under the privilege of gender sensitivity and other concerns (Ahmed & Hussain, 2023).

Perceived Ease of Use (PEOU)

It elaborates on how the country can follow the TAM and have more acceptance of the model. The idea has been explored by understanding the reasons like low digital literacy in rural areas which needs to be supported with the simplification of hotel medicine platforms for users in Urdu and English language both. The other idea is exploring the language barrier supported by offering regional language facilitation in audio form because of literacy rate is low in Pakistan. The training has been provided for healthcare professionals to increase the usefulness of telemedicine tools under the context of government support and enhancing the facilitation scenario. Non-government organizations (NGOs) are playing a professional role in this context to equip telemedicine services and help to reach remote areas (Shoukat et al., 2023). the ideal approach also focuses on digital inclusion programs for digital literacy encouragement for women and elder adults of various rural communities. This is helpful to engage the community and offer them public and private partnerships. Sehat Kahani is a popular example of offering telemedicine clinics, especially with the support of women to avoid social barriers Karim et al., 2024).

Telemedicine Companies in Pakistan

Pakistan is a development council country where summer startups are focusing on launching online medicine services under the title of telemedicine. The popular names include Sehat Kahani, mediQ, Simple, Next Health and Xpertflow (Tariq & Iqbal, 2023). The last decade has been a benchmark for introducing 7 new companies as a support to encourage the idea of telemedicine. Karim et al. (2024) claim that about 64.8% of basic support has been there for the telemedicine services which is comprised of 59.3% for medical applications. There is less knowledge support for exploring the resources and standards to 25%. Sehat Kahani is an example in this context from 2017, to narrate the idea that continuous education can help in this regard to deal with the challenges of customer satisfaction and increasing online visits.

Ahmed & Hussain (2023) added that Xpertflow was started in 2018, it added value to the telemedicine acceptance by vibrant solutions and innovative ideas for the users so the gap of digital literacy could be filled and language barriers could be supported. The company is enabling the facilitation and supporting the infrastructure challenges with the help of government support to have a positive social influence and apply the policy with better recommendations.

Conceptual Framework

A conceptual framework is comprised of the dependent and independent variables and their collaboration in the current study. The hypothesis is based on the analysis of the variables from the conceptual framework which is comprised of TAM impacts, services and uses. The collaboration has been justified with the inference of PU and PEOU to identify how the Pakistani community can emphasis the acceptance of TAM. The conceptual framework identifies the variables under three main categories and justifies the role of the AM in an outline to support evidence.

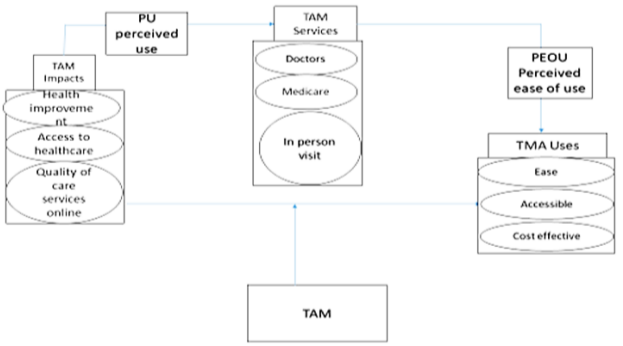

Figure 1 Conceptual Model

Literature Gap

The literature gap has been identified because telemedicine has been started by some limited authors in the previous analysis. It is a new concept and has been reviewed in the last decade only however the work was started in Pakistan in 2017 and Sehat Kahani was the first to encourage the idea. This shows how a developing country is emphasizing the use of a specific idea and maintaining it in the long term. The current study is revealing the literature about understanding of acceptance of the specific model and its implications in the present scenario. The study is significant because it meets the literature gap left by the previous authors to recommend better approaches and apply the testimonials for the three mentioned theories. Testimonials for the three mentioned theories in the theoretical foundations. Further, meeting the literature gap has increased the scope of the present analysis.

4. METHODOLOGY

Research Design

The study has utilized a primary quantitative method to support the evidence-based analysis. It narrates how the idea has been explored in a developing country where the need to offer PU and PEOU can be supported with the actual applications of telemedicine services. The primary analysis outlines a questionnaire my third designed on the idea of PU wear telemedicine improvement and access technology has been utilized in comparison to the in-person visits. Further, the questionnaire has also supported PEOU in understanding the navigation and communication facilitation and the experiences of users. The primary method is outlining the behavior intentions of the users and understanding that the users understand the role of liquid scale in supporting the idea of sharing their experiences. The study has explored the primary method because it helps collect the appropriate data from the highlighted audience.

The data has been collected online as the users have digital literacy and they are also experiencing telemedicine services online. The quantitative method is helpful to avoid bias because the limited data has been revealed with the help of a sample where irrelevant information and an open-ended questionnaire have been evolved to show the data of relevant content could be collected in the limited time scale. Further, the research design has been facilitated with the positivism philosophy which encourages the researcher to understand the data and interpret it with high authenticity. The use of the deductive approach has been compatible in this regard as analyzed by Pandey & Pandey (2021) for exploring limited content without bias. The study has tested 3 theories and justified them in the summing context of how the theoretical foundations have been implemented in revealing the result and making sure that the content is according to the needs of analysis for telemedicine acceptance in a developing country.

Sample

The data has been collected with the help of a sample from the targeted population. The whole population is comprised of people who have experienced telemedicine in some way in the country. They can share their experiences and also identify loopholes to offer better recommendations based on the policy and experiences. They can talk better about the improvement project because they have experienced the services and know the loopholes. Keeping in view the specific population, the researcher couldn't take the data from the whole population so sampling has been outlined. Verma et al. (2024) claim that purposeful sampling is an ideal context where a limited sample has been chosen from a huge population because it helps to have the correct choices and avoid irrelevant people as respondents. The sampling has been done based on the non-probability and purposive sampling outline. The sample size was 100 and they filled out the Google online survey form to provide the data.

Data Collection

The data collection plan has preferred the primary quantitative outline because positivism philosophy and deductive approach have been utilized. The researcher has collected the data with the data collection instrument of the survey with the help of a closed-ended questionnaire based on the variables of the conceptual framework of the study. The questionnaire feedback will also help provide the information for testing the theory and summing the opinion to apply the deductive approach in the real sense. The questionnaire has been outlined and it has been uploaded on the Google survey form and the link has been sent to the relevant samples. They have built the content and sent back the form which has been aligned in the form of an Excel sheet, some tables and graphs.

Data Analysis

After the collection of the data, the next step is data analysis. It has been done with the help of smart PLS software where specific values have been outlined to handle a small set of population samples. Smart PLS is found to be a support approach in dealing with the small population set of 100 samples only because the study has not extended the sample size due to a limited number of resources and time for analysis. The data has been analyzed with the help of software and the results are discussed to test the hypothesis and discuss their approval or disapproval. It has been found that how the acceptance has been there in the current analysis TAM in Pakistan. It also forecasted how the policy and recommendation process can be done to encourage the users in future to increase the acceptance of telemedicine services in the country.

Validity and Reliability

Validity and reliability have been tested in the primary data. It has been found that the validity has been high because the data has been collected from the exact samples. There is less chance of content validity because the researcher has consulted the experienced ones in samples. There are no buys in the data and well-established TM constructs have been outlined in the survey design for both the PU and PEOU, it has been further facilitated with criterion validity to measure the behavioral context under the conceptual framework to support that how the consistency has been there and the data has not any bias in measurement. In measurement, the validity has been supported with the reliability factor where internal and external consistency has been reviewed. The reliability factor has been supported with the test and retest reliability to ensure consistency and also support standardized measures to avoid biases. The data has been collected with a quantitative perspective so the reliability feature has already been high.

5. RESULTS

The results are shared with the help of Tables for the output of the Smart PLS. It has been found that the comparison has been done using the variables in all the Tables.

Table 1: Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FC -> UI	-0.124	-0.104	0.147	0.845	0.398
PEOU -> PU	0.658	0.668	0.041	16.182	0.000
PEOU -> UI	-0.170	-0.156	0.185	0.922	0.357
PR -> T	-0.717	-0.716	0.061	11.780	0.000

PR -> UI	0.157	0.179	0.127	1.240	0.215
PU -> UI	0.421	0.444	0.191	2.209	0.027
RC -> UI	-0.553	-0.547	0.241	2.294	0.022
SI -> UI	0.333	0.281	0.168	1.981	0.048
T -> UI	0.215	0.191	0.226	0.950	0.342
TA -> PEOU	0.710	0.670	0.250	2.841	0.005
TA -> RC	0.666	0.601	0.290	2.301	0.021

Note: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Trust (T), Technological Anxiety (TA), Resistance to Use (RC), Facilitating Conditions (FC), Social Influence (SI, Perceived Risk (PR), Usage Intention (UI).

Table 1 has reviewed the path coefficient with the help of the sample, sample mean and standard deviation. It reveals that the value is high for PU and PEOU, TA and RC, FC and SI.

Table 2: Outer Loading

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FC 1 <- FC	0.104	0.096	0.162	0.643	0.520
FC 2 <- FC	0.772	0.764	0.117	6.590	0.000
FC 3 <- FC	0.931	0.913	0.068	13.602	0.000
PEOU 1 <- PEOU	0.819	0.817	0.030	26.881	0.000
PEOU 2 <- PEOU	0.958	0.959	0.011	83.826	0.000
PEOU 3 <- PEOU	0.946	0.947	0.006	155.237	0.000
PR 1 <- PR	0.900	0.896	0.031	29.254	0.000
PR 2 <- PR	0.897	0.902	0.023	39.555	0.000
PR 3 <- PR	0.344	0.323	0.150	2.294	0.022
PU 1 <- PU	0.901	0.903	0.016	55.526	0.000
PU 2 <- PU	0.839	0.825	0.047	17.841	0.000
PU 3 <- PU	0.915	0.921	0.018	50.808	0.000
RC 1 <- RC	-0.580	-0.535	0.252	2.301	0.021
RC 2 <- RC	0.802	0.762	0.211	3.800	0.000
RC 3 <- RC	-0.598	-0.569	0.194	3.082	0.002
SI 1 <- SI	0.734	0.669	0.209	3.513	0.000
SI 2 <- SI	0.908	0.875	0.105	8.649	0.000
SI 3 <- SI	0.680	0.700	0.122	5.550	0.000
T 1 <- T	0.855	0.852	0.023	37.547	0.000
T 2 <- T	0.810	0.821	0.026	31.759	0.000
T 3 <- T	0.769	0.747	0.103	7.467	0.000
TA 1 <- TA	0.906	0.847	0.321	2.826	0.005
TA 2 <- TA	0.663	0.623	0.228	2.914	0.004
TA 3 <- TA	-0.903	-0.843	0.323	2.794	0.005
UI 1 <- UI	0.729	0.731	0.106	6.902	0.000
UI 2 <- UI	0.925	0.890	0.059	15.657	0.000
UI 3 <- UI	0.304	0.248	0.326	0.933	0.351

Table 2 shows the comparative analysis for the outer loading and it has been found that significant values are not raised in this context for variables other than social media influencers directly.

Table 3: R-Square

R-Square	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
PEOU	0.504	0.512	0.067	7.503	0.000
PU	0.433	0.448	0.054	7.951	0.000
RC	0.444	0.445	0.060	7.351	0.000
T	0.514	0.517	0.085	6.008	0.000
UI	0.796	0.830	0.040	20.028	0.000

Table 3 shows showing R square value and it has been found that it shows showing standard maximum deviation for PEOU followed by PU and the lowest one is for UI.

Table 4: R-Square Adjustment

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
PEOU	0.500	0.508	0.068	7.400	0.000
PU	0.429	0.444	0.055	7.824	0.000
RC	0.440	0.441	0.061	7.236	0.000
T	0.510	0.514	0.086	5.927	0.000
UI	0.786	0.822	0.042	18.805	0.000

Table 4 shows showing R square adjustment value for the three variables. The highest output has been found by FC followed by PU and the lowest money for PEOU again as per R square previous table.

Table 5: Average Variance Extracted

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FC	0.491	0.490	0.054	9.031	0.000
PEOU	0.828	0.828	0.020	41.008	0.000
PR	0.578	0.582	0.028	20.832	0.000
PU	0.784	0.782	0.026	30.721	0.000
RC	0.446	0.446	0.051	8.694	0.000
SI	0.608	0.591	0.059	10.287	0.000
T	0.660	0.657	0.045	14.581	0.000
TA	0.692	0.692	0.034	20.524	0.000

Table 5 shows average values extracted for five variables at maximum. It has been found that the peak value is for brand trust which is a dominant variable in contrast to FC followed by PEOU and RC. The lowest significance has been found for the variance for UI in this table.

Table 6: Cronbach Alpha

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FC	0.622	0.618	0.059	10.526	0.000
PEOU	0.897	0.897	0.014	62.549	0.000
PR	0.553	0.544	0.086	6.410	0.000
PU	0.862	0.861	0.020	43.115	0.000
RC	0.038	0.025	0.158	0.237	0.813
SI	0.670	0.666	0.054	12.313	0.000
T	0.746	0.741	0.052	14.418	0.000
TA	-0.989	-1.020	0.277	3.569	0.000
UI	0.438	0.431	0.100	4.367	0.000

Table 6 shows showing crown batch alpha value with the percentage comparison to see the contrast of the various variables. It is revealed that the maximum value exists for UI as a singular followed by PEOU.

Table 7: Heterotrait-Monotrait Ratio (HTMT)

	Original sample (O)	Sample mean (M)	2.5%	97.5%
PEOU <-> FC	1.029	1.030	0.934	1.126
PR <-> FC	0.772	0.784	0.570	1.039
PR <-> PEOU	0.853	0.835	0.683	0.975
PU <-> FC	0.743	0.754	0.592	0.968
PU <-> PEOU	0.715	0.717	0.637	0.795
PU <-> PR	0.943	0.918	0.752	1.075
RC <-> FC	1.092	1.120	0.903	1.438
RC <-> PEOU	1.241	1.248	1.079	1.506
RC <-> PR	1.656	1.615	1.287	1.999
RC <-> PU	0.845	0.861	0.684	1.073
SI <-> FC	0.742	0.765	0.575	1.006
SI <-> PEOU	0.224	0.267	0.188	0.399
SI <-> PR	0.847	0.860	0.684	1.059
SI <-> PU	0.928	0.934	0.839	1.036

SI <-> RC	0.859	0.895	0.696	1.181
T <-> FC	0.802	0.815	0.680	0.979
T <-> PEOU	0.923	0.928	0.884	0.987
T <-> PR	1.087	1.079	0.883	1.261
T <-> PU	0.849	0.856	0.809	0.916
T <-> RC	1.471	1.485	1.245	1.874
T <-> SI	0.653	0.665	0.550	0.800
TA <-> FC	0.843	0.858	0.620	1.062
TA <-> PEOU	0.771	0.773	0.620	0.900
TA <-> PR	0.614	0.608	0.442	0.788
TA <-> PU	0.656	0.666	0.544	0.786
TA <-> RC	1.106	1.118	0.894	1.434
TA <-> SI	0.361	0.413	0.315	0.531
TA <-> T	0.681	0.694	0.592	0.801
UI <-> FC	0.881	0.904	0.678	1.155
UI <-> PEOU	0.635	0.648	0.416	0.842
UI <-> PR	1.150	1.124	0.806	1.391
UI <-> PU	0.743	0.754	0.636	0.879
UI <-> RC	1.400	1.415	1.181	1.664
UI <-> SI	1.197	1.201	1.010	1.420
UI <-> T	0.993	0.994	0.772	1.185
UI <-> TA	0.517	0.535	0.346	0.750

Table 7 shows showing HTMT value for comparison of various variables where the dominant value has been traced for PU in connection to PEOU.

6. DISCUSSION

Hypotheses Review

The 9 variables are the indirect and independent variables that impact the variable known as brand reputation and consumer trust for the brand in the market as direct and dependent variables. The positive impact of the influencer and content will be supporting the business decision-making and increasing the online sales of the items that have been reviewed. The study has reviewed the relationship between the variables and their applications with the help of eight hypotheses.

7. PERCEIVED EASE OF USE (PEOU) HAS A POSITIVE EFFECT ON PERCEIVED USEFULNESS (PU).

Perceived Ease of Use (PEOU) refers back to the volume to which people believe that the usage of a technology is loose from effort. On the other hand, perceived Usefulness (PU) displays the diploma to which users consider that a gadget enhances their performance. According to the Technology Acceptance Model (TAM), whilst users understand a system as easy to use, they are much more likely to view it as beneficial. This dating is particularly relevant to telemedicine offerings, wherein ease of navigation, person-friendly interfaces, and seamless connectivity can decorate customers' notion of its usefulness. If telemedicine structures require minimum attempt to study and function, users will recognize their capability blessings, which includes saving time, lowering tour, and enhancing healthcare accessibility. Therefore, when people perceive telemedicine as simple and intuitive, they may be greater willing to renowned its usefulness in addressing their healthcare needs, main to higher adoption quotes.

8. PERCEIVED EASE OF USE (PEOU) HAS A POSITIVE EFFECT ON USAGE INTENTION (UI)

Perceived Ease of Use (PEOU) performs a vital function in figuring out a man or woman's willingness to undertake new technology. If users discover a machine smooth to navigate, they are more likely to broaden a nice mind-set toward its usage. In the context of telemedicine, complicated interfaces, technical difficulties, or a loss of user-pleasant features can also discourage adoption. However, if telemedicine systems are designed with simple login approaches, clean instructions, and minimum technical boundaries, users might be extra willing to apply them. Particularly in Pakistan, where virtual literacy ranges, a smooth-to-use telemedicine tool can encourage people to seek remote healthcare offerings. Research in era adoption has always proven that systems perceived as less complicated reduce consumer resistance and boom confidence in utilization. As result, an advantageous perception of ease of use at once complements the aim to apply telemedicine offerings, making it a key determinant of generation acceptance.

9. PERCEIVED USEFULNESS (PU) HAS A POSITIVE EFFECT ON USAGE INTENTION (UI)

Perceived Usefulness (PU) is a huge issue influencing the acceptance of any new era. It displays the quantity to which people trust that the use of a machine will improve their efficiency and productivity. In the context of telemedicine, if customers perceive that virtual consultations offer timely, handy, and fee-effective healthcare answers, they'll be more inclined to undertake and use the service. For instance, sufferers who apprehend that telemedicine saves them from lengthy clinic wait instances and journey charges are more likely to comprise it into their healthcare exercises. The TAM suggests that after users believe a device is useful, their goal to use it increases, main to higher adoption costs. In Pakistan, in which access to healthcare facilities is frequently restrained, telemedicine's perceived usefulness can extensively power consumer engagement. If users sense that telemedicine effectively meets their healthcare wishes, they will be more willing to combine it into their daily lives, in the end fostering extra attractiveness and utilization of digital health services.

10. TRUST (T) HAS A POSITIVE EFFECT ON USAGE INTENTION (UI)

Trust plays an important role inside the adoption of telemedicine offerings, as it affects sufferers' willingness to use online healthcare platforms. When users agree with telemedicine vendors, they sense assured that their non-public statistics is steady, diagnoses are correct, and clinical advice is dependable. Trust reduces uncertainty and fosters tremendous attitudes towards generation-based healthcare offerings. In Pakistan, wherein digital healthcare adoption continues to be emerging, believe in healthcare experts, platform protection, and service reliability can considerably effect individuals' decisions to use telemedicine. If sufferers understand telemedicine as honest, they are much more likely to agenda online consultations, comply with medical advice, and advocate the provider to others. Conversely, a loss of accept as true with may lead to reluctance in the usage of telemedicine because of fears of misdiagnosis, privateness worries, or statistics breaches.

11. PERCEIVED RISK (PR) HAS A NEGATIVE EFFECT ON TRUST (T).

Perceived chance refers to users' worries about capacity poor results associated with telemedicine offerings, including record privacy violations, clinical mistakes, and fraud. Higher perceived risks can undermine believe in telemedicine carriers, as users can also doubt the credibility of virtual consultations and the security of their health records. If people feel that telemedicine poses economic, privateness, or protection dangers, they're much less possibly to believe the gadget, reducing their willingness to use these offerings. In Pakistan, worries approximately digital protection and healthcare fine may additionally in addition intensify those fears.

12. PERCEIVED RISK (PR) HAS A NEGATIVE EFFECT ON USAGE INTENTION (UI).

When people understand telemedicine as unstable, they are less likely to use it, leading to lower adoption costs. Perceived risks may also consist of concerns about the accuracy of remote diagnoses, the security of scientific records, and the opportunity of receiving incorrect treatment. If customers consider that telemedicine poses large dangers, they'll pick conventional in-person consultations, even though telemedicine offers convenience and accessibility. In Pakistan, where digital health systems are continuing to grow, perceived hazard can act as a first-rate barrier to telemedicine adoption. Addressing these concerns through regulatory rules, encryption technologies, and public recognition campaigns can help mitigate perceived risks and inspire extra use of telemedicine services.

13. TECHNOLOGICAL ANXIETY (TA) HAS A NEGATIVE EFFECT ON PERCEIVED EASE OF USE (PEOU).

Technological Anxiety (TA) refers to a character's fear, apprehension, or soreness whilst using new technology. In the context of telemedicine, folks who experience excessive technological tension may additionally find it hard to recognize and function telemedicine systems effectively. This perception reduces their self-belief in the usage of the device, leading to a lower Perceived Ease of Use (PEOU). If users experience aggravating navigating telemedicine packages or fear about making mistakes, they will understand the technology as complex and unintuitive. This negative affiliation discourages them from exploring the device similarly, reinforcing the belief that telemedicine is difficult to use. Consequently, technological tension acts as a psychological barrier that forestalls people from perceiving telemedicine as consumer-friendly, in the end hindering adoption.

14. TECHNOLOGICAL ANXIETY (TA) HAS A POSITIVE EFFECT ON RESISTANCE TO USE (RC).

Resistance to use (RC) refers back to the reluctance or unwillingness to adopt a new technology. Individuals with excessive technological anxiety are more likely to face up to using telemedicine offerings. When customers sense overwhelmed through the complexities of digital healthcare structures, they may keep away from engagement altogether. This avoidance conduct stems from the worry of making errors, safety issues, or a loss of self-belief in their virtual skills. Moreover, folks who are uncomfortable with the generation frequently develop a terrible mindset toward it, who prefer conventional face-to-face healthcare consultations over virtual interactions. Thus, technological anxiety strengthens resistance to telemedicine, making customers hesitant to explore its blessings.

15. RESISTANCE TO USE (RC) HAS A NEGATIVE EFFECT ON USAGE INTENTION (UI)

Usage Intention (UI) refers to a person's willingness to adopt and use telemedicine offerings. When customers strongly resist technology, their purpose to apply it decreases extensively. Resistance to use arises due to multiple elements, including mistrust inside the system, fear of generation, lack of knowledge, or desire for traditional healthcare techniques. If people withstand the usage of telemedicine, they're unlikely to appreciate its benefits, including comfort, accessibility, and performance. This resistance prevents them from developing an advantageous attitude closer to telemedicine, reducing their likelihood of adoption. As a result, high resistance at once lowers the goal to apply telemedicine services, slowing down virtual healthcare adoption in Pakistan.

16. FACILITATING CONDITIONS (FC) HAVE A POSITIVE EFFECT ON USAGE INTENTION (UI).

Facilitating condition (FC) consult with the external factors that help the adoption and use of telemedicine services, which include access to essential generation, net connectivity, technical assistance, and healthcare infrastructure. When these conditions are favorable, customers are much more likely to just accept and adopt telemedicine services due to the fact they enjoy fewer limitations to usage. For example, if individuals have reliable net access, user-friendly systems, and technical assistance, they will find telemedicine more accessible and handier. In the context of Pakistan, in which the digital infrastructure and healthcare accessibility range, facilitating situations play an important role in influencing consumer goals. Limited access to the net, lack of understanding, and inadequate digital literacy may prevent telemedicine adoption. Conversely, government projects, telehealth schooling applications, and progressed digital infrastructure can enhance user self-belief and willingness to have interaction with telemedicine services. Thus, the hypothesis suggests that better facilitating situations will positively impact a person's intention to use telemedicine.

17. SOCIAL INFLUENCE (SI) HAS A POSITIVE EFFECT ON USAGE INTENTION (UI)

Social influence (SI) refers back to the impact of one's family, friends, colleagues, and society on an individual's selection to adopt new ideas. In the case of telemedicine, if influential humans in a character's social circle advocate or use telemedicine, they're much more likely to adopt it themselves. Social have an impact on can come from direct tips, peer reviews, or societal tendencies that sell telemedicine as a reliable healthcare

option. In a collectivist society like Pakistan, in which circle of relatives and social networks notably impact choice-making, the recognition of telemedicine may be pushed through tips from depended on people. For instance, if a member of the family effectively uses telemedicine for session and encourages others, this may boom self-belief and adoption among others. Additionally, healthcare specialists advocating telemedicine, government consciousness campaigns, and positive word-of-mouth experiences can make stronger social impact. The hypothesis, therefore, indicates that once people see others using and endorsing telemedicine, their aim to apply it'll boom.

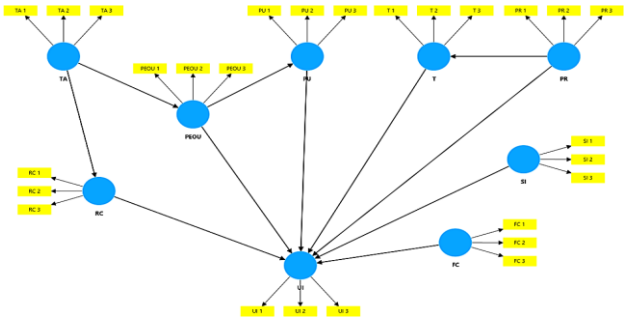

Figure 2 Graphical Output (Author)

18. CONCLUSION

Findings

The examines findings indicate that multiple factors significantly have an impact on the popularity of telemedicine services in Pakistan. Perceived Ease of Use (PEOU) was found to have a robust positive effect on Perceived Usefulness (PU) and Usage Intention (UI), suggesting that customers are much more likely to adopt telemedicine if they find it person-pleasant. Similarly, Perceived Usefulness (PU) had an immediate positive effect on Usage Intention (UI), reinforcing the concept that people undertake telemedicine services when they understand them as beneficial and powerful. Trust (T) emerged as a critical thing in figuring out telemedicine acceptance, because it appreciably influenced Usage Intention (UI). However, Perceived Risk (PR) negatively affected Trust (T) and Usage Intention (UI), indicating that concerns over record privacy, misdiagnosis, and reliability ought to avoid adoption. Technological Anxiety (TA) negatively impacted Perceived Ease of Use (PEOU) and undoubtedly encouraged Resistance to Use (RC), showing that folks who enjoy worry or pain with technology are less likely to interact with telemedicine.

Additionally, Resistance to Use (RC) had a strong bad effect on Usage Intention (UI), further emphasizing the function of mental barriers in adoption. External factors additionally played a giant role in shaping telemedicine adoption. Facilitating Conditions (FC) positively motivated Usage Intention (UI), confirming that getting access to the net connectivity, technical support, and digital literacy enhances adoption. Moreover, Social Influence (SI) turned out to have a strong high-quality impact on Usage Intention (UI), suggesting that suggestions from circle of relatives, pals, and healthcare specialists appreciably inspire telemedicine use in Pakistan's collectivist society.

Recommendations

Based on the findings, numerous suggestions can be made to encourage the adoption of telemedicine services in Pakistan. Improving technological accessibility is vital. The government and personal healthcare providers must invest in strengthening digital infrastructure, ensuring strong network access, and providing consumer-friendly telemedicine systems. Additionally, technical help and schooling programs must be added to improve virtual literacy, in particular for older adults and rural populations. Building agreement in telemedicine is critical. Healthcare providers have to ensure the security and confidentiality of patient records via superior encryption and cybersecurity measures. Public focus campaigns have to teach customers about the credibility of telemedicine services and the qualifications of healthcare specialists, worried. Regulatory frameworks must also be established to standardize telemedicine practices, ensuring safe carrier delivery and reducing perceived risks.

Addressing technological anxiety and resistance to trade is necessary. Providing hands-on education, video tutorials, and customer support can assist customers conquer fear and hesitation. Healthcare institutions ought to combine telemedicine with existing in-person offerings, permitting gradual transition in preference to a sudden shift to virtual healthcare. Moreover, leveraging social affect can substantially raise adoption. Government companies, healthcare specialists, and influencers should actively promote telemedicine through community engagement, media campaigns, and patient testimonials. Encouraging early adopters to proportion fine experiences will assist in normalizing telemedicine usage. Enhancing facilitating situations by supplying incentives, together with sponsored internet access for telemedicine users, will encourage more people to include virtual healthcare answers. Collaboration between public and private sectors can make sure telemedicine offerings are extensively available, less expensive, and reliable.

Future Implications

The findings of this observation provide several critical implications for the future of telemedicine adoption in Pakistan. As virtual healthcare continues to adapt, policymakers and healthcare institutions must prioritize the combination of telemedicine into the mainstream healthcare system. This consists of formulating country-wide telemedicine guidelines, setting regulatory standards, and making sure compliance with medical ethics and data protection recommendations to enhance user consideration and decrease perceived dangers. From a technological perspective, future advancements in artificial intelligence (AI), device mastering, and blockchain technology can similarly enhance telemedicine offerings with the aid of enhancing diagnostic accuracy, ensuring data protection, and personalizing patient care. Investments in 5G and net infrastructure will even play a crucial position in increasing telemedicine access, specifically in rural and underserved regions of Pakistan.

On the social and behavioral facet, converting attitudes closer to digital healthcare will, in all likelihood, cause multiplied recognition over the years. As more people,

specifically more youthful generations, grow to be comfortable with virtual services, telemedicine adoption is expected to rise. Future research should discover long-term user behavior, including retention costs and user delight, to understand continuous upgrades in telemedicine services. Furthermore, the financial implications of telemedicine must be studied, in particular its capacity to lessen healthcare expenses, minimize medical institution overcrowding, and enhance access to specialists. Collaborations among the public and private sectors can assist in designing sustainable telemedicine fashions that cater to Pakistan's diverse populace.

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