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Factors Influencing Consumer Adoption of Smartphones: Evidence from Rural Areas of Pakistan

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Abstract

The global Covid-19 pandemic disrupted education and restricted travel for many people, escalating the use of smartphones as educational tools. This paper analyses the factors influencing consumer adoption of smartphones from the perspective of college and university-going students belonging to rural areas of Pakistan. The paper aims to assess the impact of perceived enjoyment, perceived usefulness, social influence and personal characteristics on the consumer adoption of smartphones, particularly during and after the unprecedented times of the Covid-19 pandemic. This quantitative study uses questionnaires to obtain insights from 398 college and university-going students who regularly travel from rural areas of Pakistan to acquire education in cities. The study uses IBM-SPSS Statistics software to investigate the relationship of perceived enjoyment, perceived usefulness, social influence and personal characteristics with the consumer adoption of smartphones. The findings of this study can assist marketers in dedicating marketing efforts in line with the factors that shape young people's perception towards adoption of smartphones in rural areas.

Keywords: Covid-19, smartphones, educational tools, perceived enjoyment, perceived usefulness, social influence, personal characteristics, adoption

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1. Introduction

The use of smartphones has become increasingly common in Pakistan and is continuing to increase at a rapid pace, particularly in the recent times. The expression "smartphone"

commonly stands for a mobile phone that contains some features similar to the features of a computer and offers access to internet. Owing to such sophisticated features, smartphones have caused a large-scale replacement of conventional mobile phones. This quick rate of

penetration has given birth to questions regarding factors behind the acceptance of smartphones and the functionalities that attract people to this portable gadget (Chmielarz, 2020).

In this time and age, the use of mobile phones has become so common that they are considered a necessity by all age groups. As of 2021, an estimated 6 billion users of mobile phones existed across the world (O'Dea, 2022). In 2020, the population of Pakistan was approximately 220 million, out of which 65% was rural (World Bank, 2020). According to the United Nations Fund for Population Activities (UNFPA), 61% of the Pakistani population consists of people between the age group of 15-64 years, making it one of the largest young populations in the world (UNFPA, 2022). In 2021, it was further reported that mobile phone subscribers amounted to 183 million in Pakistan (Ali, 2021), increasing by 164.9 million from 2020 (Kemp, 2020). However, in most rural areas of Pakistan, the owners and users of smartphones are not familiar with all features of the phone due to lack of internet connectivity. Rural residents mostly use television and newspapers to obtain information (Zameer, Saeed, & Abass, 2012).

Since the onset of the global COVID-19 pandemic, the significance of smartphones has largely increased because students have started using smartphones as learning tools to attend online classes. The use of these gadgets has allowed students to digitally access learning material and communicate with their peers and instructors, even from remote places (Darko-Adjei, 2019). Since a large number of Pakistanis possess smartphones, a research was needed to

analyze what factors have increased the pace of smartphone acceptance in young people belonging to rural areas of Pakistan. The COVID-19 pandemic has intensified the need to investigate this research gap. Regardless of the accelerated penetration of smartphones in our lives, more research on the adoption of smartphones was needed in rural areas, where the COVID-19 pandemic has greatly affected the lifestyle of individuals (Grantz, et al., 2020). Therefore, this study sets out to obtain insights on the following research objectives:

1. To examine the impact of perceived enjoyment on adoption of smartphones in rural areas of Pakistan
2. To examine the impact of perceived usefulness on adoption of smartphones in rural areas of Pakistan
3. To examine the impact of social influence on adoption of smartphones in rural areas of Pakistan
4. To examine the impact of personality characteristics on adoption of smartphones in rural areas of Pakistan

2. Literature Review

The ownership and use of smartphones across the world has tremendously increased over the years. Browsing on mobile phones, downloading and watching content, using mobile phone applications for various purposes has increased by 50% in the past decade. It is not only the adoption of smartphones but also the frequency

of access that has increased worldwide. The heavy usage of smartphones has also augmented the demand for high-speed internet and free WiFi facilities in public areas all over the world. Moreover, the efficiency of smartphone applications saves money and time for people, thereby, enhancing the overall consumer experience (Jan, Jager, Ameziane, & Sultan, 2019).

Across the world, students use smartphones as learning tools to obtain and share information, thereby increasing their chances of achieving academic excellence. The simultaneous availability of internet and smartphones has made distance-learning possible and effective. With the use of mobile technology, students are able to connect with their peers and instructors at all times. Smartphones have allowed students to attend classes in real-time without having to travel long distances. Consequently, smartphones have enhanced the capability of students to keep up with their classwork and attend classes that they might have otherwise missed. A study conducted on university students' use of smartphones in Jordan revealed that their smartphone usage increased greatly during the quarantine period (Saadeh, et al., 2021). On the other hand, if not used wisely, smartphones can be a source of distraction for students. Online gaming, excessively using social media, and watching entertainment shows through smartphones can become a menace and adversely impact the academic performance of students (Somroo, 2013). After the onset of COVID-19 pandemic, a significant increase in internet misuse was also seen due to easy

access of internet through smartphones (Kemp, 2020).

A research conducted in rural areas of India indicates that most owners of smartphones use it to browse social media, play online games, listen to music, and watch movies. Education and professional activity are other important purposes for which people use smartphones in rural areas. Students use it to download electronic books and resources in addition to using it for finding jobs and searching for employment opportunities. Lastly, smartphones are also used for agricultural and governmental applications in rural areas (Reddy, 2018). A study conducted in the Pakistani rural areas of Gilgit-Balistan collected data from 272 youngsters to determine if they used mobile phones as a means of having social status, benefitting from its features, or ensuring personal safety. The study also intended to determine the impact of smartphone usage on young people and their parents. The study concluded that most young people, irrespective of their genders, used smartphones as a status symbol. Most of them utilized it to appear trendy and fashionable to their friends and peers. The second most important factor was communication, as the rural mountainous areas required constant connection with family. Therefore, most youngsters used mobile phones to interact with their parents, families and friends. Lastly, mobile phones were also used to ensure safety. The safety not only included physical safety of individuals but also the safety of their money. Smartphones reduced the cost of purchasing books and provided easy and secure transfer of money through various money transfer

applications (Rahim, Sahar, Jabeen, Shah, Jahan, & Bibi, 2020).

2.1 Theories of Consumer Acceptance Behavior

This study employs three theories of consumer acceptance behavior that lead to consumers accepting or disregarding products or technologies. These theories form the basis of consumers accepting products and are used to predict consumer behavior in relation to particular products in specific settings and timeframes.

An essential theory about the Technology Acceptance Model (TAM) is that the original acceptance of devices is subjective to perceived advantages from the use of devices. The TAM has offered a key framework of theory and methodology to assist researchers regarding adoption of technologies. Notably, the TAM considers an individual's opinion about the utility of devices in terms of perceived utility and perceived convenience of use (Davis, 1989). Rogers (1995) explained utility as the total worth that a person perceives while adopting a device. In TAM, perceived utility is essentially the expectation of results provided by the impact of acceptance of a new technology (Venkatesh, 1999). Thus, perceived utility is a major factor in TAM because it influences a person's adoption of technology. Many studies have discovered the benefits brought about by perceived utility on adoption of portable devices. For instance, perceived utility has been found to be a critical factor in the adoption behavior towards internet (Park & Cheong, 2005) and portable banking (Purwanto & Loisa, 2020).

The Theory of Reasoned Action (TRA) stands partially on individual norms. Individual norms are explained as perceptions that some referents believe an individual should not or should execute a particular behavior (Fishbein & Ajzen, 1975). With respect to adoption of technology, individual norm relates to people who are willing to disregard or accept a device by monitoring the acceptance behaviors of other people with whom they have significant associations, such as friends, family members and coworkers. In this context, this theory proposes that a person's observation and decision to adopt technology is directly related to the influence of the society, particularly the influence of friends and family.

The Trait Theory indicates that cardinal (central and secondary) traits of an individual are the building blocks of personality. Cardinal traits usually dominate the personality of an individual. Central traits are the characteristics of people that they use to define themselves to others, while secondary traits emerge in certain situations only (Allport, 1937). Personality plays an important role in the acceptance and ownership of smartphones by people. The various traits of an individual's personality such as social, extravagant, practical and friendly can not only influence the adoption of smartphones but also the various purposes for which individuals use smartphones (Lane & Manner, 2011).

2.2 Perceived Enjoyment

A research exploring factors leading to excessive use of smartphones by undergraduate students indicates that online games, virtual-reality games, and social media platforms are the main

attractions for young people (Olasina & Kheswa, 2021). Through the use of a smartphone, users are able to access social networking websites, entertainment portals and emails on the go. Moreover, the utility offered by applications on a smartphone, which was restricted on conventional cellular phones, has allowed smartphones to take the place of numerous technological gadgets such as laptops and personal assistants. Compared to traditional devices, such advanced characteristics of smartphones help them penetrate rapidly into our daily lives and increases the perceived enjoyment for potential smartphone customers. The perceived enjoyment that individuals can extract out of a gadget prompts them to make decisions in favor of accepting or disregarding it (Chen, Zhang, & Zhao, 2015). Therefore, the following has been hypothesized:

Hypothesis 1 (H1). *Perceived enjoyment has a significant impact on the adoption of smartphones in rural areas.*

2.3 Perceived Usefulness

A research conducted in Malaysia investigated the impact of ease of use, social needs, perceived usefulness, economic value and brand image on the purchase intention of customers towards smartphones. The findings indicated that ease of use and social value have no impact on the purchase intention of an individual. However, the degree to which an individual considers smartphone a useful gadget along with the economic value and brand image have a significant impact on the adoption of smartphones (Herman, Hassan, & Dastane, 2017). A study

conducted in Pakistani universities revealed that students found smartphone applications, including SMS and social media platforms, to be useful in completing their academic tasks. College and university-going students utilized their smartphones for various academic purposes and this usage had a positive impact on their academic performances (Ahmed, Salman, Malik, & Streimikiene, 2020). An important implication of smartphone usefulness can be determined by studying the current situation of the world after the COVID-19 pandemic. The pandemic abruptly changed how education was imparted by instructors and acquired by students. Both instructors and students used their smartphones to take online classes, complete assignments, and even take exams (Livari, Sharma, & Ventä-Olkkonen, 2020). In the context of Pakistan, there are currently 76.38 million internet users, a figure that is very less when compared to the total population of the country. Therefore, lack of internet access can become a hurdle for people in using smartphones for educational purposes (Iqbal & Campbell, 2021). Based on review of literature, the following hypothesis has been proposed:

Hypothesis 2 (H2). *Perceived usefulness has a significant impact on the adoption of smartphones in rural areas.*

2.4 Social Influence

The influence of society is widespread and deep-rooted when it comes to adoption of smartphones. People are highly impacted by social factors such as association, positive self-expression, status and perceived fame.

Therefore, peers and family play a pivotal role when it comes to purchase decisions of smartphones in Pakistan (Asad Ullah, Hassan, Siddique, & Mehar, 2020). A research by Njodzefe & Fobang (2019) intended to determine factors that affected smartphone adoption by university students. Interviews were conducted from 30 students, out of which 12 stated that they switched from a basic phone to a smartphone after observing their peers who used expensive camera phones with multiple features and applications. The students indicated that social influence surpassed the cost associated with switching from a basic phone to a smartphone. Another research investigating the antecedents of smartphone dependency indicated that societal needs and pressures of the society can influence individuals to be highly dependent on their smartphones and this is where marketers have an opportunity to attract customers to purchase smartphones by promoting satisfaction of their social needs and the need for belongingness (Harun, Liew, Wahid Bin, & Sulong, 2015). Therefore, the following hypothesis has been proposed to investigate the impact of social influence on adoption of smartphones:

Hypothesis 3 (H3). *Social influence has a significant impact on the adoption of smartphones in rural areas.*

2.5 Personal Characteristics

A study conducted in Kenya explored factors such as income, occupation, lifestyle and personality characteristics in relation to mobile phone purchase decisions. Data was collected from 298 respondents living in Nairobi and the

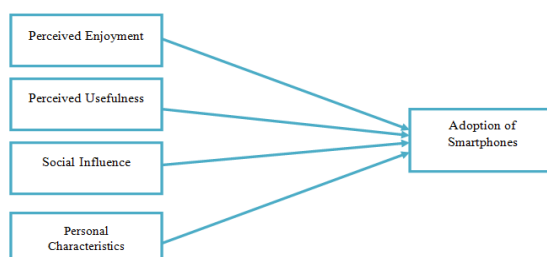
findings revealed that individual personalities have an immense impact on the purchase intention of people, whereas, occupations and ages have no relationship with purchase of smartphones (Njigua, 2018). A research by Lane & Manner (2011) indicated that personality traits can impact the possibility of an individual deciding to adopt or disregard a smartphone. The people who were outgoing, social and extravagant were more likely to use a smartphone because they were more interested in messaging, networking and connecting with others. The desire to be sociable and maintain a network of friends encourages people with such personality traits to easily accept a smartphone. Moreover, people who had a high degree of agreeability and individuals who gave importance to honest information-exchange reported a high amount of smartphone usage for calling other people. Therefore, the following has been hypothesized:

Hypothesis 4 (H4). *Personal characteristics have a significant impact on the adoption of smartphones in rural areas.*

2.6 Conceptual Framework

Keeping in consideration the review of literature and the hypotheses given above, the following conceptual framework has been developed for this study:

Figure 1: Conceptual Framework



3. Methods

This study is quantitative in nature and uses a deductive approach, which is commonly used by researchers to develop hypotheses based on existing literature (Gupta, Shaheen, & Reddy, 2018). On the basis of the available theories in literature, independent variables namely perceived enjoyment, perceived usefulness, social influence and personal characteristics were developed for hypothesis testing. Data was obtained through questionnaires from college and university-going students belonging to rural families who could afford college or university education in Pakistan. Data analyzed with the help of a statistical software called IBM-SPSS Statistics. A total of 398 respondents were selected to participate in this study through the use of non-probability convenience sampling technique. This study also employs the explanatory research strategy in which relationship among various independent variables and the dependent variable is examined (Given, 2008). The study is cross-sectional in nature because the data was collected from respondents at a specific point in time.

The collected data was analyzed through the IBM-SPSS Statistics software. Firstly, a descriptive analysis was conducted. The Cronbach's Alpha test was applied to determine the reliability and internal consistency of variables, after which the correlation test was applied to determine the relationship between independent variables namely perceived enjoyment, perceived usefulness, social influence and personal characteristics and the dependent variable namely adoption of

smartphones. Face validity was used to determine the validity. The regression analysis was also applied to investigate the impact of independent variables on the dependent variable.

4. Results and Discussion

4.1 Demographic Analysis

Table 1: Age bracket of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 18 years old	268	67.3	67.3	67.3
18-24 years old	107	26.9	26.9	94.2
25-30 years old	16	4.0	4.0	98.2
Above 30 years old	7	1.8	1.8	100.0
Total	398	100.0	100.0	

The age of the respondents was divided into four categories as shown in Table 1. Majority of the respondents, that is 67.3%, belonged to below 18 years of age, 26.9% belonged to the age bracket of 18-24 years of age, 4% belonged to 25-30 years old, and the remaining 1.8% were above 30 years of age.

Table 2: Monthly family income of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below PKR 50,000	147	36.9	36.9	36.9
PKR 50,001 - PKR 100,000	126	31.7	31.7	68.6
PKR 100,001 - PKR 150,000	52	13.1	13.1	81.7
Above PKR 150,000	73	18.3	18.3	100.0
Total	398	100.0	100.0	

The monthly family income of the respondents was divided into four categories and the responses showed that the monthly family income of 36.9% of the respondents was below PKR 50,000. The monthly family income of 31.7% respondents was between PKR 50,001 – PKR

100,000. The monthly family income of 13.1% respondents was between PKR 100,001 – PKR 150,000, while the remaining 18.3% had a monthly family income above PKR 150,000.

4.2 Reliability Analysis

Table 3: Reliability analysis of the model

Cronbach's Alpha	N of Items
.894	5

The overall reliability of the model is shown in Table 3 after checking the inter-item consistency of the model considering the five variables. The five variables are perceived enjoyment, perceived usefulness, social influence, personal characteristics and adoption of smartphones (dependent variable). According to (Hair, Black, Babin, & Anderson, Multivariate Data Analysis, 2010), the Cronbach's Alpha value should be above 0.7 as it presents the reliability of the instrument. The Cronbach's Alpha value of 0.894 shows the instrument was reliable, the items have more shared covariance and are measuring the same relationship.

4.3 Correlation Analysis

In order to check the correlation between the variables, the Pearson Model was used in this study (Hair, Black, Babin, & Anderson, Multivariate Data Analysis, 2010).

Table 4: Correlations of variables

		Adoption of Smartphones	Perceived Enjoyment	Perceived Usefulness	Social Influence	Personal Characteristics
Adoption of Smartphones	Pearson Correlation	1	.611**	.782**	.610**	.487**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	398	398	398	398	398
Perceived Enjoyment	Pearson Correlation	.611**	1	.753**	.719**	.599**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	398	398	398	398	398
Perceived Usefulness	Pearson Correlation	.626**	.753**	1	.752**	.556**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	398	398	398	398	398
Social Influence	Pearson Correlation	.610**	.719**	.752**	1	.583**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	398	398	398	398	398

The correlation analysis reveals the direction and the strength of relationship between the dependent and independent variables. The nearer the value is to 1, the more strongly correlated it is. It can be seen that perceived enjoyment has a 0.61 positive and significant relationship with the adoption of smartphones. Hence, both variables are 61% correlated with each other. Adoption of smartphones and perceived usefulness are 78.2% correlated. Adoption of smartphones and social influence are 62.6% correlated, while adoption of smartphones and personal characteristics are 48.7% correlated with each other.

4.4 Regression Analysis

Table 5: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	Sig. F Change
1	.804 ^a	.647	.643	.54158	.647	.000

a. Predictors: (Constant), Perceived Enjoyment, Perceived Usefulness, Social Influence, Personal Characteristics and Adoption of Smartphones

The model summary depicts the impact of the all the independent variables on dependent variable. The model value of R is 80.4%, indicating that the combined relationship between perceived enjoyment, perceived usefulness, social influence and personal characteristics with adoption of smartphones is quite strong. The R Square shows that the independent variables are able to explain 64.7% variation on the dependent variable. Thus, we can establish that R Square depicts the regression to be acceptable to statistical observations as it meets the minimum criteria of 10%. The findings indicate a 64.7% variance in the adoption of smartphones.

4.5 Model significance: ANOVA

Table 6: ANOVA – Independent variables on Adoption of Smartphones

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	210.860	4	52.715	179.725	.000
	Residual	115.271	393	.293		
	Total	326.131	397			

The ANOVA table shows the fitness of model selected for the study and it can be seen that the overall value of Sig. is less than the threshold value of 0.05, indicating that the model appears to be fit.

4.6 Coefficients

Table 7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.172	.155		1.111	.267
	Perceived Enjoyment	.150	.044	.139	3.444	.001
	Perceived Usefulness	.285	.057	.246	4.965	.000
	Social Influence	.416	.051	.398	8.189	.000
	Personal Characteristics	.202	.053	.147	3.797	.000

Based on Table 7, the following equation can be concluded:

$$\text{Adoption of Smartphones} = 0.172 + 0.150 (\text{Perceived Enjoyment}) + 0.285 (\text{Perceived Usefulness}) + 0.416 (\text{Social Influence}) + 0.202 (\text{Personal Characteristics}) + \text{error}$$

The above equation indicates that one unit increase in perceived enjoyment will increase the adoption of smartphones by 0.150 units. The affect appears to be significant because the value of Sig. is less than 0.05. Similarly, the results also indicate that one unit increase in perceived usefulness will increase adoption of smartphones by 0.285 units, one unit increase in social influence will increase adoption of smartphones by 0.416 units, and one unit increase in personal characteristics will increase adoption of smartphones by 0.202 units.

4.7 Hypotheses Testing

Hypothesis 1 (H1). *Perceived enjoyment has a significant impact on the adoption of smartphones in rural areas.*

Table 7 shows the value of standardized coefficient of perceived enjoyment as 0.150 and a significance level of 0.001. This means that perceived enjoyment has a significant impact on the adoption of smartphones. Hence, we accept H1.

Hypothesis 2 (H2). *Perceived usefulness has a significant impact on the adoption of smartphones in rural areas.*

Table 7 shows the value of standardized coefficient of perceived usefulness as 0.285 and

a significance level of 0.000. This means that perceived usefulness has a significant impact on the adoption of smartphones. Hence, we accept H2.

Hypothesis 3 (H3). *Social influence has a significant impact on the adoption of smartphones in rural areas.*

Table 7 depicts the value of standardized coefficient of social influence as 0.416 and a significance level of 0.000. This means that social influence has a significant impact on the adoption of smartphones. Hence, we accept H3.

Hypothesis 4 (H4). *Personal characteristics have a significant impact on the adoption of smartphones in rural areas.*

Table 7 shows the value of standardized coefficient of personal characteristics as 0.202 and a significance level of 0.000. This means that personal characteristics have a significant impact on the adoption of smartphones. Hence, we accept H4.

5. Conclusion, Recommendations and Areas for Future Research

5.1 Conclusion and Recommendations

The purpose of this paper was to determine the impact of perceived enjoyment, perceived usefulness, social influence and personal characteristics on adoption of smartphones in rural areas of Pakistan. Data was collected with the help of questionnaires from 398 college and university-going students belonging to rural areas of Pakistan who regularly traveled to acquire education in cities. The study provides empirical

support for the four hypotheses. The results indicate that perceived enjoyment, perceived usefulness, social influence and personal characteristics have a significant relationship with consumer adoption of smartphones. However, the most significant relationship with adoption of smartphone is that of perceived usefulness. It means that majority of the young people belonging to rural areas of Pakistan considered smartphone a useful device, in terms of its academic, personal or professional benefits, more than a device that provides enjoyment, adds to status, or fulfills other social needs. These findings are in line with a study conducted by Ahmed, Salman, Malik, & Streimikiene (2020) which indicated that various features of a smartphone that provide utility and their regular use plays an important role in the adoption of smartphones. The findings further reinforce the findings of Livari, Sharma, & Ventä-Olkkonen (2020) which stated that during the COVID-19 pandemic, the college and university-going students found it convenient and beneficial to utilize their smartphones for attending online classes and submitting their assignments without having to physically travel to their institutions. Therefore, the distinctive features of a smartphone encourage individuals to consider it expedient. The findings of this study also reveal that perceived usefulness, particularly after the emergence of COVID-19 pandemic, has developed a strong association with adoption of smartphones. This is mainly due to the fact that smartphones help young people stay connected with their family and friends, particularly when they cannot visit them. In addition, smartphones now play an important role by helping college and

university-going students achieve academic excellence. In the situation of a pandemic, when all classes shifted online, people realized the efficacy and usefulness of smartphones.

Moreover, the findings of this study indicate that social influence has the second most significant impact on the adoption of smartphones by young people. This means that society, friends, and family play an important role in encouraging youngsters to purchase smartphones. The influence of society is perceived fame that harbors from the pressure felt by individuals instead of their definite needs. Youngsters are highly impacted by social factors such as association and positive self-expression. Hence, these findings support a study by Harun, Liew, Wahid Bin, & Sulong (2015) which discovered that young individuals considered societal pressure an important factor and were susceptible to inclining towards smartphone adoption under the influence of friends and peers. Thus, the impact of society is as critical a factor as the functionality of a smartphone in the context of smartphone adoption. Smartphone companies can benefit from this and incorporate it in their marketing efforts to promote smartphones in rural areas. The third most significant factor that influences the adoption of smartphones is perceived enjoyment. Social media, gaming and entertainment applications offered by smartphones provide enjoyment to individuals and prompt them to consider adopting smartphones. Lastly, personal characteristics have the least significant impact on adoption of smartphones. This means that although the relationship between personal characteristics and adoption of smartphones is significant,

personality traits may not be the deciding factor when it comes to adoption of smartphones by college and university-going students belonging to rural areas.

This study can assist marketers in promoting smartphone brands to rural populations. The study discovered that during the COVID-19 pandemic, the rural population of Pakistan adopted smartphones because they increasingly perceived them as a useful communication and education device, followed by adopting it due to social influence, perceived enjoyment and personal characteristics, respectively. These findings can be used by smartphone companies to not only market relevant smartphones to the rural population but to also devise advertising strategies in line with these findings.

5.2 Areas for Future Research

Despite several important findings, the study was not devoid of limitations. The sample did not include an extensive range of demographics with respect to age groups, genders and ethnic backgrounds. Therefore, in the future, research can be carried out to examine influential factors by including additional demographic and social variables. A research can also be conducted to compare factors that affect young people's adoption of smartphones in rural and urban areas. This will provide a comprehensive view regarding adoption of smartphones by young people. In addition, various other independent variables such as brand image, price and availability can be incorporated in the conceptual framework and their impact can be studied in relation to adoption of smartphones.

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