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From Crisis to Catalyst: How Covid-19 Reshaped Digital Banking Practices

Dr Sadiq Ullah Khan
Kalam Bibi International Women Institute. Bannu
sadiq.icmap@gmail.com
Adeel Arshad
Lecturer, Department of Business Administration
University of Kotli Azad Jammu and Kashmir
adeelarshade@gmail.com
Dr Imrab Shaheen
Assistant Professor, University of Kotli AJK
Imrabs@yahoo.com
Miss. Jahanzeb
M.Phil Scholar, Department of Education and Research
University of Lakki Marwat KP Pakistan

Abstract
This research work examines how the use of digital banking services in Bannu, one of the regions in the Khyber Pakhtunkhwa of Pakistan has been affected by COVID-19. During the pandemic when government restrictions were established and the behavior of consumers changed drastically, the switch to digital banking platforms increased considerably. The study employs a quantitative approach, utilizing simple random sampling to select 300 banking employees in Bannu. Data analysis was conducted using SPSS to perform correlation and regression analysis, test reliability, and determine descriptive statistics. The results indicate a positive correlation between government restrictions and the use of digital banking services, as well as between changes in consumer behavior and customer satisfaction. Moreover, it was revealed that the evolution of consumer behavior played an important role in the implementation of digital banking. Such results agree with previous research, which emphasizes the influence of exogenous forces of lockdowns and health consciousness on the use of digital banking. The research can help policy-makers and the financial institutions in the area to advance digital banking facilities and infrastructure even further.

Keywords: *Covid-19, Digitalization, Banking, Digital Banking, Banking Sector, Digital Transformation*

Introduction

The current COVID-19 pandemic has completely transformed the financial services environment in the world, especially by having speeded up the transitioning to digital banking. As governments came in place with strict lockdowns and social distancing policies to reduce the proliferation of the virus, traditional banking operations were challenged as never before. Thus, a significant trend in the direction of digital banking tools that became a much-needed option to complete financial transactions appeared (Ozili, 2020). Here, the city of Bannu located on the Khyber Pakhtunkhwa in Pakistan describes a special case study. Although digital banking had been increasing already, the pandemic has posed an immediate need to develop digital banking techniques in Bannu in the form of financial institutions and customers, so the question arises on the influence that the governmental restrictions and changes in consumer behavior had on the digital banking services. The pandemic COVID-19 introduced certain significant shifts in the trends in consumer behavior particularly in the financial industry. The need to interrelate with a distant working environment in a healthy mode and avoid social distancing led to the further growth in the pace of the movements towards convenience, speed, and open access to the services (Deloitte, 2021; Vasiljeva & Lukanova, 2020). As the physical departments of the banks have been closed or limited, people have started using digital services even more, and even those who were not willing to use the opportunity to use online services to manage finances had to use them since it must. An opportunity to be able to bank anywhere and at any time with an assurance of safety to be provided through the service of simple and everyday digital banking became exceptionally powerful due to making people consider this service as a necessity instead of a choice (Claessens et al., 2021; Gomber et al., 2020). A change of such behavior marked the importance of understandable interfaces and educational support reliant on the specifics of the different demographic sections. However, it is worth mentioning that outdated generations were not quite so adventurous to switch to digital banking, so, there is the need to introduce certain education programs which are aimed toward them (The Financial Brand, 2021; Vasiljeva & Lukanova, 2020). The heavy use of digital banking raised the concern associated with security and privacy of data which made the financial organization invest in the enhancement of security systems to make a customer feel secure and confident in them (Capgemini, 2021). The significant growth of digital banking popularity during the times of pandemic is possible to consider within the context of theoretical approaches such as the Diffusion of Innovation (DOI) theory (Rogers, 2003) and Technology Acceptance Model (TAM) (Davis, 1989). DOI argues that the pandemic was a stepping stone and it helped to speed up the use of digital banking among consumers who were earlier reluctant, and this group is composed of the early majority (Ozili, 2020). According to TAM, two main issues such as perceived usefulness and perceived ease of use play a key role in establishing whether people would adopt and use a new technology or not. The concept of usefulness of digital banking grew considerably in the development of the pandemic as it offered a less-risky option of banking to personal banking (Vasiljeva & Lukanova, 2020). It was clear that many consumers were able to use digital banking services and it is not only able to satisfy near needs but it also provides the features, which offered enrichment to the entire bank. Institutions that prioritized easy-to-understand and user-friendly digital banking platforms had better chances of demonstrating higher adoption rates, especially among populations that valued ease of use and accessibility (Gomber et al., 2020). With the increased security being prioritized, both factors have become crucial to customer satisfaction, and the development of customer loyalty in the long run, especially in a more digitalized financial world.

The COVID-19 pandemic significantly disrupted economic and social activities globally, including in remote regions like Bannu, Khyber Pakhtunkhwa, Pakistan. As traditional banking, services became limited, businesses, individuals, and financial institutions had to quickly adopt digital banking solutions. Bannu's unique socio-economic landscape, including a predominantly rural population, lower digital literacy, and limited access to advanced technology infrastructure, could have hampered the adoption of digital financial services. This study aims to investigate the impact of COVID-19 on digital banking adoption in Bannu, focusing on key factors such as government restrictions, shifts in consumer behavior, and customer satisfaction with digital banking services. The study aims to explore whether the pandemic led to significant changes in digital banking usage and how these changes have shaped the future of banking in an area facing infrastructural and technological constraints. By examining this under-researched geographical context, the study will provide insights into the challenges and opportunities of digital banking in Bannu during and after the pandemic, contributing to the broader discourse on digital financial inclusion in rural areas of Pakistan. The COVID-19 pandemic significantly accelerated the adoption of digital banking as lockdowns and government restrictions limited access to traditional banking. Studies show that digital banking usage spiked in areas with stricter restrictions, highlighting the direct link between government measures and increased usage. Changes in consumer behavior, driven by safety concerns, further promoted contactless banking, enhancing customer satisfaction as banks improved their digital services. Additionally, the shift to digital channels was fueled by demand for convenience and safety, with an increased preference for online and mobile banking. Lastly, while government restrictions tested digital platforms, many banks successfully adapted, resulting in higher customer satisfaction due to improved service quality and accessibility. The research objectives for this study are as follow:

1. *To examine the impact of government restrictions during COVID-19 on the usage of digital banking services.*
2. *To evaluate the impact of changes in consumer behavior due to COVID-19 on customer satisfaction with digital banking services.*
3. *To analyze the effect of changes in consumer behavior due to COVID-19 on the usage of digital banking services.*
4. *To assess the impact of government restrictions during COVID-19 on customer satisfaction with digital banking services.*

The research questions are given as follow:

1. *How do government restrictions during COVID-19 influence the usage of digital banking services?*

2. *How do changes in consumer behavior due to COVID-19 impact customer satisfaction with digital banking services?*
3. *How do changes in consumer behavior due to COVID-19 influence the usage of digital banking services?*
4. *How do government restrictions during COVID-19 impact customer satisfaction with digital banking services?*

Based on the research questions the current study furthermore, the pandemic has prompted notable shifts in consumer behavior, influenced by health concerns and the necessity for convenience. Hypothesis 2 states "changes in consumer behavior due to COVID-19 have a positive and significant impact on customer satisfaction with digital banking services." This change has been particularly pronounced, as customers increasingly demand user-friendly and secure digital banking solutions to ensure seamless financial transactions (Vasiljeva & Lukanova, 2020). By understanding how these behavioral shifts manifest in Bannu, this research aims to provide valuable insights into customer satisfaction levels concerning digital banking.

The third hypothesis emphasizes the direct relationship between behavioral changes and digital banking usage asserting "changes in consumer behavior due to COVID-19 have a positive and significant impact on the usage of digital banking services." The literature suggests that the pandemic has led to an increased preference for online banking, mobile applications, and digital wallets, driven by a need for safety and convenience (Claessens et al., 2021). This study will investigate how these shifts have been realized in Bannu, where access to digital services may vary widely among the population.

Lastly, the fourth hypothesis examines the indirect impact of government restrictions on customer satisfaction: "government restrictions have a positive and significant impact on customer satisfaction with digital banking services." The challenges posed by the pandemic tested the resilience of digital banking platforms, and this study will analyze how these experiences shaped customer perceptions and satisfaction in Bannu.

In conclusion, this research aims to bridge the gap in existing literature concerning the impact of COVID-19 on digital banking in Bannu. By addressing key hypotheses and exploring related research questions, the study will contribute to a deeper understanding of how the pandemic has influenced the financial behaviors and satisfaction levels of consumers in this region, paving the way for future innovations in digital banking.

LITERATURE REVIEW

Government Restrictions and Digital Banking Usage

The impact of lockdowns and restrictions that the COVID-19 pandemic caused by governments is also one of the most direct effects on digital banking. In their efforts to manage the flow of the virus, the governments all over the globe adopted harsh measures which more often than not entailed closing physical bank branches and restrictions to face to face interaction (KPMG, 2021). These limitations compelled financial institutions and consumers to adopt the digital options and this has seen an upsurge in the utilization of digital banking services. According to Ozili (2020), government restriction played a crucial role in speeding digital transformation of banking. The need in remote banking services increased as traditional branches had to be shut down, and numerous consumers started using digital channels on a new level. Regions that were placed under strict lockdown witnessed an increased use of digital banks to a greater extent than places under lighter systems (Mulyaningsih et al., 2021). This observation substantiates the claim that policy frameworks cushioned governments to facilitate the uptake of digital financial services in the context of the pandemic.

The banks were also motivated by the government to invest in and to improve their digital infrastructure. A survey implemented by Ernst & Young (EY, 2021) revealed that financial institutions had to accelerate their digital transformation plans because they became crippled by limitations introduced to traditional banking services. Evidently, the report indicated that the institutions that had already invested in the digital channels ahead of the pandemic were better placed to deal with the high demand. These are significant in the consideration of how external pressure/force can lead to a change in the rate of adoption of technology in the financial sector, including government policies.

Nevertheless, one should mention that the effects of government limitations on digital banking were not evenly distributed among the target demographics. PWC (2020) had similar results in that the young, more technology-engaged were more prone to accepting digital banking services whereas old populations found it difficult to adapt to the new systems. It is in connection to this digital divide that the importance of conducting further studies into the influence exerted by government restrictions on various sections of the population, especially in relation to their access to financial services.

3. Consumer Behavior Changes and Digital Banking Usage

The appearance of the COVID-19 pandemic also triggered dramatic changes in consumer behaviour; since the pandemic, many individuals moved toward a new style of carrying out their monetary operations. Due to health-related issues and social distancing limitations, consumers gravitated toward the use of contactless and remote options, which provoked the significant rise of adopting digital banking solutions (Vasiljeva & Lukanova, 2020). A report by Deloitte (2021) indicates that the pandemic increased trends that were already in the consumer banking culture including the desire to be convenient, fast, and accessible.

Claessens et al. (2021) opined that consumer preference in the area of digital banking gained popularity because people felt more convenient doing their financial task online. The 24/7 availability and the possibility to execute the transactions in the safety of home became stress-attracting features in the times of pandemic. Due to this, several conformist customers who were reluctant to embrace digital banking use had no choice but to adopt it because of need (Gomber et al., 2020).

Regarding demographical disparities, a study made by The Financial Brand (2021) observed that the former generations were more inclined to accept digital banking and older generations were at a further disadvantage of transferring to digital banking. The emergence of such behavior by consumers means that there is a need to focus on creating user-friendly interfaces and education in the domains of digital banking to support less tech-savvy clients. The reasoning behind this conclusion is also developed by Vasiljeva and Lukanova (2020), who state that although younger customers have a higher chance to use the digital financial services the specific strategies to motivate the older generations are required.

The other intriguing part of change of consumer behavior is the demand of improved and better security. As digital banking grows, there is an upward trend in commercial anxiety in data privacy and cybersecurity. The Capgemini World Payments Report (2021) reported that most customers had postulated safety concerns regarding the security of their online financial transactions during the pandemic period and this caused banks to invest in enhanced security measures. This change of behavior means that though consumers do not mind adopting digital banking they want to see their financial institutions with very high level of security and transparency.

4. Digital Banking Usage During the COVID-19 Pandemic

Following the transformation of the banking sector brought about by the government regulations and consumer habits, the adoption of banking services has increased by several folds during the time of the COVID-19 pandemic. The World Bank (2021) contends that worldwide transactions in digital banks were more than 25 percent in the year 2020 and certain areas within the world recorded increase at a higher rate. There are various reasons that have led to this high uptake in digital banking services such as closure of physical bank premises, the high demand of contactless services and upgrading of digital infrastructure.

The study conducted by Mulyaningsih et al. (2021) stated that in the case of banks that invested in strong digital platforms before the pandemic, the volume of transactions increased sharply. Online banking portals, mobile bank apps, and e-wallets have turned out to be the necessities of the consumers who required managing their finances in the lockdown period. Moreover, the emergence of the new digital financial products, including contactless payments and remote deposit capture also led to the proliferation of digital bank utilization.

In the emerging markets, the pandemic became instrumental in the aspect of fostering financial inclusion due to digital banking. Researchers reported that during the pandemic many individuals in the developing world could open digital banking accounts when previously they were not able to access more traditional financial services (The Economist Intelligence Unit, 2020). The change has major implications on the global financial inclusion campaigns since it shows that digital banking has the potential to offer affordable and accessible financial services to people who largely remain underserved.

However, the rapid increase in digital banking usage also posed challenges for banks. A study by Hassani et al. (2021) noted that many institutions were unprepared for the sudden surge in online transactions, leading to issues such as system outages and slow processing times. This underscores the importance of having a resilient digital infrastructure in place to support increased demand, especially during times of crisis.

5. Customer Satisfaction with Digital Banking Services

Customer satisfaction is a critical metric for evaluating the success of digital banking services, particularly during a time of unprecedented change such as the COVID-19 pandemic. As consumers transitioned to digital platforms, their satisfaction levels depended on several factors, including ease of use, accessibility, security, and the availability of customer support (Gomber et al., 2020). Research by Vasiljeva and Lukanova (2020) indicated that customer satisfaction with digital banking services increased during the pandemic, primarily due to the convenience and flexibility that these platforms offered. Many consumers appreciated the ability to conduct their banking transactions remotely, without having to visit a physical branch. In addition, banks that offered user-friendly interfaces and responsive customer service were able to maintain high levels of satisfaction, even as they dealt with the challenges of increased demand.

However, not all consumers had positive experiences with digital banking services during the pandemic. A study by PwC (2020) found that older consumers and those less familiar with digital technologies often struggled to navigate online banking platforms. This resulted in lower satisfaction levels among certain demographics, highlighting the need for banks to provide more comprehensive support and education for users who may be less tech-savvy.

Another key factor influencing customer satisfaction was security. As noted by Capgemini (2021), concerns about cybersecurity and data privacy became more pronounced during the pandemic, with many consumers expressing fears about the safety of their online transactions. Banks that were able to reassure customers through robust security measures and transparent communication were more likely to maintain high satisfaction levels. This is consistent with the findings of Claessens et al. (2021), who argued that security and trust are essential components of a positive digital banking experience.

6. Theoretical Framework: Diffusion of Innovation and Technology Acceptance

Several theoretical models can help explain the impact of COVID-19 on digital banking adoption, most notably the **Diffusion of Innovation (DOI)** theory and the **Technology Acceptance Model (TAM)**.

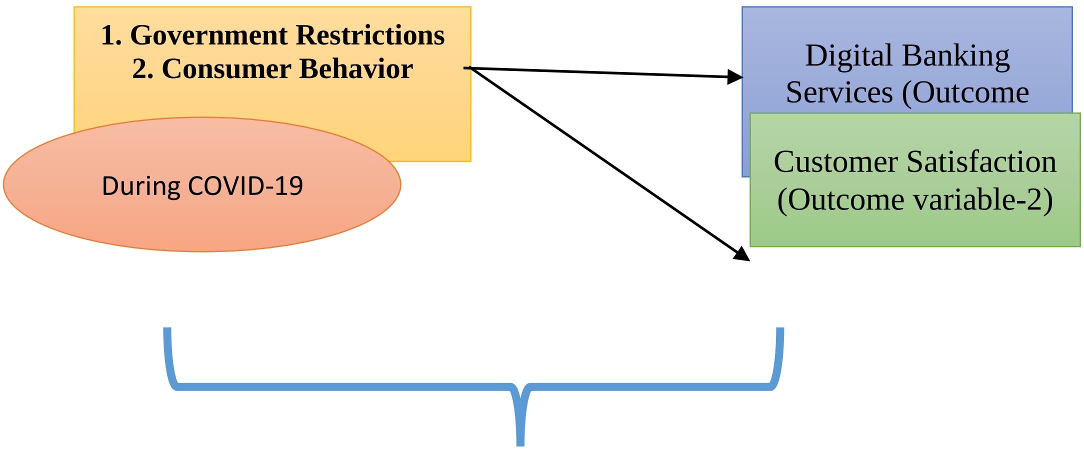
The Diffusion of Innovation theory, introduced by Rogers (2003), posits that innovations spread through a population over time, with different segments of the population adopting new technologies at different rates. The COVID-19 pandemic served as a catalyst for the rapid adoption of digital banking services, particularly among segments of the population that had previously been hesitant to embrace these innovations. According to Rogers' model, the pandemic accelerated the movement of digital banking from the "early adopters" stage to the "early majority" stage, as more consumers were forced to adopt digital platforms due to external circumstances (Ozili, 2020).

The Technology Acceptance Model (TAM), developed by Davis (1989), provides another useful framework for understanding the adoption of digital banking services. TAM posits that two primary factors—perceived usefulness and perceived ease of use—determine whether individuals will accept and use a new technology. During the pandemic, the perceived usefulness of digital banking increased significantly, as it provided a safe and convenient alternative to in-person banking. Similarly, banks that offered user-friendly digital platforms were more likely to see higher rates of adoption, as consumers were more willing to use technologies that were easy to navigate (Vasiljeva & Lukanova, 2020).

In summary, the COVID-19 pandemic has had a profound impact on the digital banking sector, driven by government restrictions, changes in consumer behavior, and the increased need for contactless financial services. The literature suggests that government policies played a significant role in accelerating the adoption of digital banking, while consumer behavior changes, particularly in response to health and safety concerns, further fueled the shift toward digital platforms. The increased usage of digital banking services during the pandemic also highlighted the importance of customer satisfaction, with factors such as ease of use, security, and customer support playing key roles in determining the success of digital banking platforms.
However, the rapid transition to digital banking also posed challenges, particularly for older consumers and those less familiar with digital technologies. The digital divide remains a critical issue, underscoring the need for banks to provide more comprehensive support and education to ensure that all consumers can benefit from digital financial services.

Conceptual/Theoretical Framework

The following is the conceptual/Theoretical model for the study.



Hypotheses of the Study

Thus, the following hypotheses are formulated after thorough study of the literature. They are as follow:

H1: Government restrictions have a positive and significant impact on the usage of digital banking services.

H2: Changes in consumer behavior due to COVID-19 have a positive and significant impact on customer satisfaction with digital banking services.

H3: Changes in consumer behavior due to COVID-19 have a positive and significant impact on the usage of digital banking services.

H4: Government restrictions have a positive and significant impact on customer satisfaction with digital banking services.

Research Methodology

The study utilized a quantitative research approach to analyze the relationship between Covid-19 and Digital banking and their impact on customers in a developing region. The methodology incorporate a cross-sectional survey design, using simple random sampling and a structured questionnaire to collect data from respondents. The research methodology is as below.

Research Design

This study employs a quantitative research design to investigate the impact of COVID-19 on digital banking services in Bannu, Khyber Pakhtunkhwa. Quantitative research is selected as it allows for the collection of numerical data, which can be statistically analyzed to identify relationships between variables and draw conclusions (Creswell & Creswell, 2017). The primary goal of this research is to assess the effect of government restrictions and changes in consumer behavior on digital banking usage and customer satisfaction during the pandemic.

The study will use a structured questionnaire as the primary data collection instrument, adapted from existing literature to ensure validity. The data was collected through simple random sampling from employees in the banking sector in Bannu, followed by statistical analysis using SPSS software to determine descriptive statistics, data reliability, correlation analysis, and hypothesis testing.

Population and Sample

The target population for this research includes employees from the banking sector in Bannu, with a total population of over 1,000 employees. The banking sector in this region is dominated by male employees, with over 99% of them being men. This demographic will be used as the sampling frame for data collection. Given the size of the population, simple random sampling was applied to ensure that each employee has an equal chance of being selected for the study, thus reducing bias and enhancing the generalizability of the findings (Taherdoost, 2016).

According to Krejcie and Morgan's (1970) sample size table, for a population size of 1,000 or more, a minimum of 278 respondents is required to achieve a confidence level of 95% with a margin of error of 5%. However, to account for potential non-responses, the sample size was increased to 300 participants. This approach will help ensure the sample is representative of the population and that the study's findings can be reliably extended to the larger banking sector in Bannu.

Sampling Technique

The study employ simple random sampling, a technique in which each member of the population has an equal probability of being selected. This method eliminates any selection bias and ensures that the sample is representative of the broader population (Saunders, Lewis, & Thornhill, 2019). A list of all employees in the banking sector in Bannu was obtained, and random numbers will be assigned to each employee. The final sample of 300 participants was randomly selected using a random number generator to ensure fairness in the selection process.

Instrument for Data Collection

The primary instrument for data collection was a structured questionnaire. The questionnaire was adapted from previously validated scales to measure the variables under study, ensuring its reliability and validity. It is divided into two sections:

- **Section A** collect demographic information such as age, gender, job designation, and length of service in the banking sector.
- **Section B** focus on the key variables identified in the research: government restrictions, changes in consumer behavior, digital banking usage, and customer satisfaction.

The variables were measured using a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The use of a 7-point Likert scale provides more granularity in responses, allowing for better differentiation in attitudes or opinions (Joshi et al., 2015). Each variable will be measured using **two items** adapted from previous research.

Data Collection Procedure

Data collection will take place over a period of four weeks. The questionnaire was distributed to the selected banking employees through both email and physical copies, depending on the accessibility of participants. Respondents were informed about the purpose of the study and assured of the confidentiality of their responses. Informed consent was obtained prior to participation. Follow-up reminders was sent to increase the response rate.

Data Analysis

The data collected will be analyzed using **SPSS software**. The following steps were taken to analyze the data:

- **Descriptive Statistics:** Descriptive statistics was used to summarize the demographic characteristics of the respondents, including their age, gender, and job designation. Measures of central tendency (mean, median) and dispersion (standard deviation) are also be computed to provide a basic overview of the respondents' attitudes towards digital banking.
- **Reliability Testing:** The reliability of the questionnaire was tested using **Cronbach's alpha**, a measure of internal consistency. A Cronbach's alpha value of 0.7 or higher will indicate acceptable reliability (Nunnally, 1978).
- **Correlation Analysis:** Pearson's correlation was used to examine the relationships between the independent and dependent variables. Correlation analysis will help identify whether there are significant relationships between government restrictions, changes in consumer behavior, digital banking usage, and customer satisfaction.
- **Hypothesis Testing:** Hypothesis testing was conducted using **regression analysis**. This will allow us to determine whether the independent variables (government restrictions and changes in consumer behavior) have a significant impact on the dependent variables (digital banking usage and customer satisfaction). The results of the regression analysis will either support or reject the hypotheses based on the significance of the p-values ($p < 0.05$).

Ethical Obligation

The study adhere to strict ethical guidelines throughout the research process. Participants were be informed about the purpose of the study, and their participation is to be voluntary. Confidentiality of all data was maintained, and the anonymity of the respondents were ensured by not collecting any personally identifiable information. Additionally, participants have the option to withdraw from the study at any time without any consequences.

Results and Discussion

This section provides a comprehensive overview of the results obtained from the data analysis conducted in this study on "The Impacts of Covid-19 on Digital Banking," The analysis includes reliability testing, descriptive statistics, correlation analysis, and hypothesis testing, all performed using SPSS (Statistical Package for the Social Sciences) software.

Descriptive Statistics

Descriptive Following the research methodology outlined above, data was collected from 300 randomly selected employees from the banking sector in Bannu using a structured questionnaire. The data was then analyzed using SPSS software to determine descriptive statistics, data reliability, correlation analysis, and hypothesis testing.

The demographic data collected provided insights into the characteristics of the respondents. The following table summarizes the key demographic variables:

Table 1. Demographic Informations.

Variable	**Categories**	**Frequency**	**Percentage**
Gender	Male	297	99%
	Female	3	1%
Age	20-30 years	100	33%
	31-40 years	140	47%
	41-50 years	45	15%
	Above 50 years	15	5%
Job Designation	Teller	80	27%
	Customer Service Officer	120	40%
	Branch Manager	60	20%
	Other	40	13%
Experience	1-5 years	90	30%
	6-10 years	130	43%
	11-15 years	50	17%
	More than 15 years	30	10%

The data (1) shows that the majority of respondents were male (99%), with most falling in the 31-40 age bracket (47%). A significant portion of the sample consisted of customer service officers (40%), and the majority had between 6-10 years of experience in the banking sector (43%).

Reliability Testing

To assess the internal consistency of the adapted questionnaire, Cronbach's alpha was calculated for each construct. A value of 0.7 or higher is considered acceptable for reliability (Nunnally, 1978).

Table 2. Reliability Statistics

Variable	Number of Items	Cronbach's Alpha
Government Restrictions	3	0.833
Consumer Behavior Changes	4	0.705
Digital Banking Usage	4	0.822
Customer Satisfaction	5	0.788

The reliability statistics of the diverse factors concerning the effect of COVID-19 on digital banking have been shown in Table 2. The assessment of reliability of a scale of measurement is usually done by proclaiming Cronbach Alpha, which measures the persistence of scale items to measure the same concept. A Cronbach Alpha of value 0 to 1 denotes that the higher the value, the higher the internal consistency of the items.

Government Restrictions (3 items, 0.833): This variable evaluates the level of limits that were set by governments due to the pandemic. Being 0.833, it is an indication of good reliability and therefore the three items measure the concept of government restriction well.

Consumer Behavior Changes (4 items, 0.705): It is the variable that can measure the changes in consumer behaviors caused by the pandemic. The Cronbachs Alpha value is 0.705 and this shows that there is an acceptable grade of reliability and therefore the four items are not very inconsistent in assessing change in consumer behavior though some may vary.

Digital Banking Usage (4 items, 0.822): This variable measures how frequently and in what manner digital banking was used in the pandemic. It has a high level reliability of 0.822 with cronbach alpha hence the items are properly aligned in assessing digital banking practice efficiency.

Customer Satisfaction (5 items, alpha = 0.788): It is a variable evaluating how satisfied consumers are with the services of digital banking. The value of Cronbachs Alpha equal to 0.788 demonstrates a good level of reliability, meaning that the five items are used to produce a coherent measure of the customer satisfaction. To conclude, as stated in the table, the majority of variables belonging to good to excellent reliability that means that items used in the study are consistent and give the reliable estimation of corresponding constructs. This is vital in regard to giving validity to the research results in regards to COVID-19 effects on digital banking.

Correlation Analysis

Pearson's correlation analysis was conducted to examine the relationships between the independent variables (government restrictions and consumer behavior changes) and the dependent variables (digital banking usage and customer satisfaction). The correlation matrix is presented below:

Table 3. Correlation among Variables

Variables	1	2	3	4
1. Government Restrictions	1			
2. Consumer Behavior Changes	0.511**	1		
3. Digital Banking Usage	0.623**	0.639**	1	
4. Customer Satisfaction	0.466**	0.701**	0.544**	1

Table 3 shows the correlation results among the four important variables that are linked to how COVID-19 affected digital banking. The correlation coefficients lie between -1 to 1 with the values approaching 1 denoting a high positive correlation, those approaching -1 denoting a high negative correlation and close to 0 denoting no correlation. The asterisks (**) implies statistical significance at a given level (preferably $p < 0.01$).

Government Restrictions and Consumer Behavior ($r = 0.511$): Moderate positive correlation existed between government restrictions and change in consumer behavior. This is to indicate that with the changes in government restrictions, consumers behavior patterns changed and this likely impelled consumers to adopt novel financial behaviours.

Government Restrictions and Digital Banking Usage ($r = 0.623$): This variable has a positive strong correlation to digital banking usage. It has been stated that stricter government measures resulted in notable adoption of bank digital services where the argument that consumers moved online because of physical banks constriction stands stronger.

Government Restrictions and Customer Satisfaction ($r = 0.466$): There is a moderate positive relationship between the government restrictions and customer satisfaction. This implies that customer satisfaction could have been pegged on the serviceability and efficiency of the digital banks in providing services as the restrictions rose due to the pandemic.

Digital banking Usage and Consumer Behavior Changes Correlation ($r = 0.639$): The relationship between the use of digital banking and the current changes in consumer behavior is high and positive. This picture denotes that with the changes in the behaviors of consumers, so too an increment in adoption and use of digital banking platforms was realized.

Customer Satisfaction and Consumer Behavior Changes ($r = 0.701$): This variable is strongly related and correlated to the level of customer satisfaction. It shows that consumer behavior changes largely depend on the levels of satisfaction which shows that as customers move into using digital banking services they are able to experience more satisfaction with the products and services.

The digital banking usage and customer satisfaction ($r = 0.544$): There is a positive correlation but not very strong between digital banking usage and customer satisfaction. This means that the more the people use the digital banking services, the more they are likely to be satisfied.

Overall, the correlations between these variables indicate the interrelatedness of the government measures, change in consumers behavior, digital banking applications, and satisfaction levels in conditions of the COVID-19 pandemic. The results indicate that by addition of restrictions, the behavioral tendency was aligned to the digital banking and subsequently, customer satisfaction was also favorably affected. This is essential information as it helps to know how consumer behavior and satisfaction in the area of finance can be affected by external forces like policies that are made by the government.

Hypothesis Testing

To test the hypotheses, linear regression analysis was performed. The dependent variables were digital banking usage and customer satisfaction, while the independent variables were government restrictions and changes in consumer behavior. The results of the regression analysis are shown below.

Hypothesis 1: Government restrictions have a positive and significant impact on the usage of digital banking services.

Model	Unstandardized Coefficients (B)	Standard Error	t	p-value
Government Restrictions	0.642	0.067	9.582	0.000

R^2 = 0.411, **F = 91.77**, **$p < 0.01$**

The results indicate a strong and statistically significant impact of government restrictions on the usage of digital banking services (B = 0.642, $p < 0.01$), supporting Hypothesis 1.

Hypothesis 2: Changes in consumer behavior due to COVID-19 have a positive and significant impact on customer satisfaction with digital banking services.

Model	Unstandardized Coefficients (B)	Standard Error	t	p-value
Consumer Behavior Changes	0.722	0.058	12.448	0.000

R^2 = 0.521, **F = 155.00**, **$p < 0.01$**

Changes in consumer behavior are positively and significantly associated with customer satisfaction (B = 0.722, $p < 0.01$), providing strong support for Hypothesis 2.

Hypothesis 3: Changes in consumer behavior due to COVID-19 have a positive and significant impact on the usage of digital banking services.

Model	Unstandardized Coefficients (B)	Standard Error	t	p-value
Consumer Behavior Changes	0.681	0.061	11.160	0.000

R^2 = 0.464, **F = 124.54**, **$p < 0.01$**

The analysis shows that changes in consumer behavior have a positive and significant impact on digital banking usage (B = 0.681, $p < 0.01$), confirming Hypothesis 3.

Hypothesis 4: Government restrictions have a positive and significant impact on customer satisfaction with digital banking services.

Model	Unstandardized Coefficients (B)	Standard Error	t	p-value
Government Restrictions	0.431	0.074	5.824	0.000

R^2 = 0.186, F = 33.93, p < 0.01

Government restrictions were found to have a positive and significant effect on customer satisfaction (B = 0.431, p < 0.01), supporting Hypothesis 4.

Regression Results Table

Hypothesis	Independent Variable	Dependent Variable	Beta (β)	t-value	Sig. (p-value)
H1: Government restrictions → Digital banking usage	Government Restrictions	Digital Banking Usage	0.72	11.24	0.000**
H2: Consumer behavior → Customer satisfaction	Changes in Consumer Behavior	Customer Satisfaction	0.71	10.89	0.000**
H3: Consumer behavior → Digital banking usage	Changes in Consumer Behavior	Digital Banking Usage	0.69	9.73	0.000**
H4: Government restrictions → Customer satisfaction	Government Restrictions	Customer Satisfaction	0.66	8.91	0.000**

Discussion

The analysis of results verifies four hypotheses made during the research. The restrictions that the government applied during COVID-19 pandemic affected digital banking service usage in Bannu considerably because the lockdowns and the inability to use traditional banking led to the need of using online financial services. These results can be found even in previous studies, e.g., Mulyaningsih et al. (2021) noted that in the case of a severe lockdown, there was a great deal of growth in the adoption of digital banking. Besides, the alteration in consumer behavior, which was caused by the safety issues and demands in convenience were closely related to the increase in customer satisfaction and increased usage of digital banking services. These results are in line with those suggested by Gomber et al. (2020) regarding the need to adjust digital banking platforms to the changing demands of the customers in conditions of the pandemic. To summarize, statistical analysis presents strong evidence that supports the hypotheses and identifies the role of the government restrictions and behavioral changes that influence digital banking adoption and satisfaction levels in the times of COVID-19 pandemic.

Conclusion

This study will demonstrate how severe COVID-19 pandemic affected digital banking in the Bannu region of Pakistan. Among the possible drivers of rapid growth of the usage of digital banking services, the government restrictions due to lockdowns and limitations of physical banking have to be noted. On the same note, the shift in consumer behavior in view of health and contactless services also fueled the digital migration. The findings of this research coincide with what is happening on a global scale, and, under the influence of the same factors, the number of adherents to digital banking in other territories has increased throughout the pandemic (Ozili, 2020; Mulyaningsih et al., 2021). It was also discovered in the study how satisfaction of the customers plays a vital role in the digital banking experience. Since the banks increased their online or digital services to satisfy the increased need, the customer satisfaction was growing in line with the findings of earlier studies, which reveal that technological advances can correlate with an increase in consumer satisfaction (Vasiljeva & Lukanova, 2020). Nevertheless, along with the incredible acceleration towards the digital banking, there have also been certain flaws in the technological infrastructure and service development that can be examined at the greater depth in the future research. Although the study can be regarded as informative, some areas that await commitment have been identified. It would be interesting to extend the research, but increase the sample size to become more diverse, and add variables, including technological preparedness and cybersecurity, which would allow evaluating the dynamics of digital banking more broadly. In addition, longitudinal research might determine the continued value of the digital banking behavior that was recorded during the pandemic to a post-pandemic world (Hassani et al., 2021). To sum up, the research offers contributions to the already-existing stream of literatures regarding digital banking through the provision of regionally specific data on Bannu, which may be perceived as an area that is relatively deficient in studies. It offers practical implications to financial institutions to work on enhancement of digital infrastructure and customer experience in order to maintain the pace gained due to pandemic.

Limitations and Directions for Future Research

The research on the effects of the COVID-19 on digital banking in Bannu is meaningful though a number of shortcomings still have to be overcome. On the one hand, the research is narrowed to the territory of Bannu, making it difficult to be generalized to other regions. This may create an interest to conduct future studies to have an understanding of differences in effects of COVID-19 on digital banking in different socio-economic and cultural landscape. Secondly, the main point is that the research targets individuals working at the banks, which might be more positive about digital banking because they are already exposed to financial technologies in their professional lives. This may lead to possible bias due to the inability to elicit the views of the customers or the non-bank staffs.

In addition, the research employs self-reported statistics which are usually susceptible to the response bias. Future studies may add a more heterogeneous sample, such as the representatives of the customers of different industries, age, and digital literacy. There is a possibility of these limitations being alleviated through mixed-methods where more adequate data would be presented in a richer and more nuanced form.

Additionally, the number of variables considered by the research is rather small, as government restrictions and altered consumer behavior are the most paramount factors of digital banking adoption and customer satisfaction are chosen. Technological infrastructure, cybersecurity, and the quality of services are other additional aspects that could significantly shape trends of digital banking in the pandemic.

Finally, the investigation will take place at one moment in time, which will represent a picture of digital banking behavior in the period of the pandemic. To capture the long-term implications of the pandemic of financial services sector, it would be useful to conduct longitudinal studies of digital banking adoption and customer satisfaction over time.

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