Article

Examining the influence of Saudi mobile banking service quality on customer satisfaction in Saudi Arabian banking industry

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Abstract: The study sheds light on how service quality aspects affect customer satisfaction in the Saudi banking sector's particular socio-cultural setting. Thus, the study examines the role of service quality dimensions on customer satisfaction in the banking industry of Saudi Arabia. The study examined how reliability, assurance, empathy, tangibility, and responsiveness affect customer satisfaction in the Saudi Arabian banking market using 250 bank clients. 250 Saudi bank customers completed a standardised questionnaire. These were normal bank customers with proper bank accounts. IBM SPSS correlational and multiple regression analysis investigated variable connections. The study found a significant favourable influence of reliability on customer satisfaction. However, assurance was not significant. Empathy had a significant impact on customer satisfaction. Tangibility shown a significant impact on customer satisfaction. Responsiveness was not significant. The study emphasises on reliability, empathy, and physical service delivery to boost banking customer happiness. The study found 3 of 5 service quality factors to be significant predictors. Service empathy, tangibility, and reliability greatly impacted customer satisfaction. Managers in Saudi banking should prioritize reliability, empathy, and tangibility to boost customer satisfaction. To keep customers happy, managers should monitor these service quality dimensions and adjust strategies based on feedback. Technology can improve service quality by streamlining processes and personalizing experiences.

Keywords: service quality; mobile banking; reliability; empathy; tangibility; assurance; responsiveness; Saudi Arabia

1. Introduction

New technologies like mobile and internet banking have changed banking services in recent decades. This change has highlighted the importance of service quality and customer happiness in bank success (Arcand et al., 2017). Individual studies have examined these components in different areas (Kheng et al., 2010; Khan and Fasih, 2014), but a holistic knowledge is needed for sector growth. The rapid growth of IT in banking in the 21st century is due to client adoption of technology and the industry's push to draw more people into formal banking channels. Banks can fulfil increased demand for m-banking by meeting client needs through both traditional and digital channels thanks to technology (Komulainen and Saraniemi, 2019; Souiden et al., 2021). Banking apps offer new benefits and customer satisfaction (Elhajjar and Ouaida, 2020). According to marketing materials, mobile banking offers user satisfaction through telepresence, secrecy, customisation, ease of use, privacy, and efficiency (Bölen and Özen, 2020). Customer satisfaction and service quality are important to marketing theory and practice (Bölen and Özen, 2020). Service providers must improve quality to satisfy customers (Arslan, 2020).

Services are like procedures. Thus, client satisfaction is essential to repeat

business, and positive word of mouth works (Marcos and Coelho, 2022). While banking applications worldwide provide benefits and boost customer satisfaction (Bölen and Özen, 2020; Elhajjar and Ouaida, 2020), there is a lack of understanding on how these aspects apply to the Saudi banking industry's particular socio-cultural setting. In this quickly digitising world, Saudi banks struggle to sustain a competitive advantage despite the consensus on service quality and client happiness. Mobile banking integration demands a careful balance of telepresence, customisation, and efficiency for Saudi customers. Improving customer satisfaction and service quality is crucial to an organization's success (Li et al., 2021). Businesses must satisfy customers before they care about the product (Top and Ali, 2021). To meet consumer expectations, service providers must examine numerous techniques to improve customer satisfaction and quality (Ali et al., 2021). When providing services, future demand and company perceptions of customer requirements may differ (Miller, 2022). Today's world requires better customer service. Businesses must understand customer needs to boost profits and reputation (Ali et al., 2021). The service provider should prioritise this because addressing consumer needs is their top concern. Service providers should satisfy customers.

Many sectors have made progress in understanding customer satisfaction, but the Saudi banking industry has yet to fully examine the specific dimensions of service quality and their effects on customer satisfaction. Prior studies have examined service quality in hotel services, mobile banking, and online meeting platforms (Ali et al., 2021). There is little research on the Saudi banking sector, particularly on reliability, assurance, empathy, tangibility, and responsiveness, which are crucial to customer satisfaction in this region. Additionally, existing research often generalizes findings across regions and sectors, which may not accurately reflect Saudi Arabian banks' unique cultural and operational dynamics (Alam and Noor, 2020; Alzahrani et al., 2021). For instance, studies on service quality and customer satisfaction in other countries or industries (Awara et al., 2022; De Bruin, 2021) may not capture Saudi bank customers' expectations and experiences. This research addresses these gaps by examining the Saudi banking industry, providing region-specific insights that can improve service quality and customer satisfaction. Finally, the study offers the research objectives:

1) To examine the impact of reliability on customer satisfaction in the banking industry of Saudi Arabia.
2) To examine the impact of assurance on customer satisfaction in the banking industry of Saudi Arabia.
3) To examine the impact of empathy on customer satisfaction in the banking industry of Saudi Arabia.
4) To examine the impact of tangibility on customer satisfaction in the banking industry of Saudi Arabia.
5) To examine the impact of responsiveness on customer satisfaction in the banking industry of Saudi Arabia.

This research aims to make several significant contributions to service quality and customer satisfaction literature. First, it will examine how reliability, assurance, empathy, tangibility, and responsiveness affect customer satisfaction in the Saudi banking sector. Second, the research will provide Saudi bank managers and

policymakers with practical suggestions to improve service quality and customer satisfaction. This study will fill research gaps to better understand Saudi banking customer satisfaction drivers and help banks tailor their services to customer needs. This study examines how reliability, assurance, empathy, tangibility, and responsiveness affect Saudi banking customer satisfaction. The study examines these dimensions to understand customer satisfaction and provide actionable insights for improving Saudi bank service quality.

2. Literature review

Literature review discusses mobile banking industry in Saudi Arabia which help to develop the research hypotheses on testing the influence of service quality on customer satisfactions. After discussing the literature review and necessary pieces of evidence, the study develops the research hypotheses.

2.1. Service quality and e-service quality in banking sector

Quality banking management is required to achieve organizational objectives effectively and efficiently. In today's global competitive environment, organizations must improve their performance by improving quality to meet customer needs (Imran et al., 2018; Jong et al., 2019; Sinha et al., 2016). Focusing on service quality is critical for organizations to survive in a global market (Cristea and Mocuta, 2018). The definition of e-service quality has evolved, with various interpretations proposed by researchers (Zarei, 2010). Essentially, it refers to how effectively and efficiently a website provides services and products. Providing high-quality e-services is critical for businesses to remain competitive and attract a large customer base, as it plays a significant role in organizational success or failure. Evaluating the dimensions of e-service quality is critical for improving customer satisfaction and gaining a competitive advantage.

Parasuraman et al. developed the SERVQUAL scale in 1988 to assess service quality in five areas: Appliance repair and management, retail banking, long-distance telephone, security brokerage, and credit cards (Sanayei et al., 2011; Torres-Moraga, 2010). This scale identified five dimensions—reliability, responsiveness, assurance, empathy, and tangibles—with 22 variables to highlight areas that require managerial attention to improve service quality (Ariffa et al., 2012). However, as technology has advanced, customer service evaluations have shifted significantly, making the original SERVQUAL scale less appropriate for online services (Tahira and Butt, 2012). As a result, Zeithaml et al. (2005) developed the E-SERVQUAL scale to assess online service quality, which includes 11 dimensions such as reliability, responsiveness, access, flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, price knowledge, site aesthetics, and customization/personalization. Due to ongoing advancements in ICT (Alawneh et al., 2013) and the increasing adoption of technology among e-service users, the scales for evaluating e-service quality require periodic updates to remain relevant information.

2.2. Mobile banking in Saudi Arabia

Mobile banking usage in the financial sector has significantly changed due to

recent technological advancements (Alalwan et al., 2017; Zhang et al., 2018) because m-Banking consumers transact online with mobile phones and tablets. Financial institutions provide this (Shaikh et al., 2023). Saudi Arabia offers SMS banking, app downloads, and WAP banking (GPRS) for m-banking (Alzahrani et al., 2021). Interestingly, the Saudi American Bank was the first Saudi bank to offer internet, mobile, and trade services (Ghali, 2021). SADAD provides a safe, integrated, and affordable electronic payment system. It enabled complete transactions through Saudi banks (Khando et al., 2022).

Saudi Arabia is growing interested in integrating mobile technology into residents' and customers' daily lives. Recently, the Saudi government increased its investment in cutting-edge software that streamlines people's lives, which may fuel this desire. Many people utilise mobile technology in KSA, where mobile phone inflation rose over 140% in the first quarter of 2017 (Baabdullah et al., 2019). About 22.85 million Saudis use mobile devices to access the Internet (Statista, 2018). About 53% of clients use online banking aggressively, according to a poll (Baabdullah et al., 2019). 50% of clients wished to switch banks due to their current supplier's poor mobile and online banking options. The efficiency and viability of investing in mobile banking channels to satisfy Saudi users and reduce bank turnover may be questioned (Chumo, 2022).

2.3. Customer satisfaction

Customer satisfaction depends on how well his expectations and the service match (Akob et al., 2021). However, if expectations are satisfied, the service is good, and the firm cares for customers. Customer satisfaction is achieved when expectations and results match (Simanjuntak, 2021). The difference between real and expected performance affects satisfaction. Businesses with great customer value will attract customers (Zhang et al., 2019). Customer value is the expected benefits of a product or service (Mohd Satar et al., 2019).

In banking, client satisfaction occurs when a bank's products or services meet or exceed expectations. Service quality greatly impacts banks customer happiness (Paul et al., 2016; Ravichandran, 2010). E-banking and mobile banking require trustworthy, quick, and secure services (Amin, 2016; Baabdullah et al., 2019). Customer satisfaction is increasingly dependent on digital banking availability and accessibility as technology advances (Sampaio et al., 2017). Banks' emotional and social dimensions affect client satisfaction as much as their functional features. These may include client trust, personal attention and respect, and the bank's community reputation (Awan, 2011; Zameer et al., 2015). Satisfied consumers are more likely to use a bank's services, spread positive word-of-mouth, and be less price sensitive (Lee, 2013; Santouridis and Trivellas, 2010). Thus, banks must prioritise customer satisfaction to keep and attract consumers.

2.4. Customer satisfaction and service quality

Customer satisfaction refers to how well a product or service meets or exceeds customer expectations, meeting their needs and desires (Jong et al., 2019; Sinha, 2016). Customers' satisfaction with service quality reflects their perception of reliability,

responsiveness, assurance, empathy, and tangibility. For organizations to improve performance through quality enhancements, understanding and measuring customer satisfaction is crucial (Jong et al., 2019; Sinha, 2016). Customer satisfaction management, especially in e-services, is essential for staying competitive and succeeding in the global market (Cristea and Mocuta, 2018). Consider the satisfaction-service quality link. Services were transaction-specific, but service quality was a long-term satisfaction evaluation (Zaineldeen et al., 2020). Thus, positive customer satisfaction ratings will influence service quality. De Bruin et al. (2021) advocated that customer happiness precede service quality when evaluating service experiences. Previous research linked customer satisfaction to service quality (Brill et al., 2019). Customer happiness and trust are closely related, making them another key factor in a company's profitability (Al-Okaily et al., 2021). Customer happiness and service quality are distinct but related, researchers found. Customer happiness is a key company performance indicator (Al-Okaily et al., 2021).

E-service has been shown to improve customer satisfaction in many studies. Customer satisfaction is measured in numerous studies (Ali et al., 2021; Demir et al., 2021; Tran and Vu, 2019). The study used satisfaction and happiness in the same meaning. Thus, we investigated utilising this strategy. Higher service quality directly and indirectly improved customer satisfaction (Tran and Vu, 2019). Service quality affects service (Demir et al., 2021). Five variables will be used to evaluate service quality, as discussed.

2.5. Service quality

As is common knowledge, the name "service quality" is a combination of the phrases "service" and "quality". Service refers to the core components of a service, while quality is user-based. Customer value is also linked to service quality (Ali et al., 2021). Service quality includes all economic activities that do not create tangible items or built objects, according to Ali et al. (2021). Services are usually created and consumed simultaneously, and provider-user relationships can affect service outcomes (Grönroos, 2019). The intangibility, inseparability, variety, and perishability of services influence marketing strategies. When providing these services, quality is assessed. Every customer encounter shows how service providers can please or dissatisfy customers (Wirtz and Lovelock, 2021).

Consumers use and enjoy the business's services, thus they should evaluate them. Anything of quality must first meet consumer expectations and views. It implies that a good image is based on the client's perspective, not the service provider's (Tran, 2020). We can measure service quality better thanks to past studies (Ariffa et al., 2012; Sanayei et al., 2011; Tahira and Butt, 2012; Torres-Moraga, 2010; Zarei, 2010). One of the most popular service quality tools is SERVQUAL. The SERVQUAL model has dominated academic and professional debate since Berry, Zeithmal, and Parasuranam created it in 1985 to assess service quality (Ko and Chou, 2020). SERVQUAL describes its main focus as providing services and scores tangibles, reliability, responsiveness, assurance, and empathy as good customer experience attributes (Gopi and Samat, 2020). Fida et al. (2020) recommend starting quality measurements with SERVQUAL. Researchers used this model to measure service quality.

2.6. Responsiveness

It was about quick responses to technical issues, requesting technical assistance, and having questions answered (Jha et al., 2020). Because clients are happy and satisfied when something is done quickly and precisely, responsiveness is key to product profitability. This will also boost product sailing and profitability (Ali et al., 2021).

Recent research suggests that mobile banking service quality affects responsiveness time and efficacy. Arcand et al. (2017) found that responsiveness improves customer satisfaction. Hammoud et al. (2018) found that prompt feedback and problem-solving in online banking increased customer satisfaction in the Lebanese banking sector. In his study on the Ethiopian banking sector, Shanka (2012) found that customers' view of banks' desire and ability to respond quickly to their requests and problems affected their overall satisfaction with the service. Oni et al. (2016) also found that e-banking responsiveness, particularly service delivery and inquiry response, greatly affected customer satisfaction. In a cross-cultural study, Sampaio et al. (2017) discovered that mobile banking app responsiveness increases customer satisfaction. This study proposes a research hypothesis:

- H_1. Responsiveness of service quality significantly and positively influences customer satisfaction in Saudi banking industry.

2.7. Reliability

A company must provide a service accurately the first time to be reliable. The reliability of the services particularly website's technological infrastructure was good (Noori-Daryan et al., 2019). Reliability was regarded as a crucial component of contentment if the client needed to have faith in the institution or organization. Customers would be satisfied if the business fulfilled their requests (Ojha et al., 2019). In banking, reliability involves elements such as accurate record-keeping, error-free transactions, and dependable service delivery.

Many studies claimed the crucial role of reliability in shaping customer satisfaction in the banking sector. For instance, Khan and Fasih (2014) showed a strong positive relationship between the reliability of banking services and customer satisfaction in the Pakistani banking industry. Their findings suggest that customers value the bank's capacity to deliver services as promised without errors. Similarly, Amin (2016) found that reliability, particularly in online banking, significantly influenced customer satisfaction. In a study by Ngo and Nguyen (2016), reliability was identified as a crucial determinant of customer satisfaction in the Vietnamese retail banking sector. Oni et al. (2016) also found that the reliability of e-banking services, including the ability to complete transactions accurately and the site's uptime, significantly influenced customer satisfaction. This indicates the importance of dependable and accurate service delivery in e-banking. David Mc (2013), in his research on the airline industry, which shares similarities with the banking industry regarding service delivery, found that reliable service delivery was a key driver of customer satisfaction. Therefore, the study offers a research hypothesis:

- H_2. Reliability of service quality significantly and positively influences customer satisfaction in Saudi banking industry.

2.8. Assurance

Expertise, courtesy, and the capacity to instil confidence in clients are the hallmarks of assurance personnel (Sangpikul, 2023). According to the study, there are differences in the assurance ranking for each aspect of service quality. Assurance relates to operation control to achieve the desired result for the problem. A customer service operation is another important idea; understanding what it means is essential to protecting the company and preserving customer satisfaction (Ali et al., 2021).

Numerous studies have underlined the significant role of assurance in customer satisfaction in the banking sector. For example, Kheng et al. (2010) found that assurance, particularly regarding employees' knowledge and skills, greatly influenced customer satisfaction in the Malaysian banking sector. In another study, Khan and Fasih (2014) found that assurance significantly impacted customer satisfaction in the Pakistani banking sector as a dimension of service quality. Similarly, in research of mobile banking in Saudi Arabia, Baabdullah et al. (2019) found that assurance, particularly transaction security, was a significant influencer of customer satisfaction. Their findings underscore the importance of secure and reliable mobile banking services in enhancing customer satisfaction.

In a study focusing on the Vietnamese retail banking sector, Ngo and Nguyen (2016) found that assurance significantly influenced customer satisfaction, especially the competence of bank staff and the security of banking services. Furthermore, Thakur's (2014) research indicated that assurance, particularly in privacy and security, was a crucial determinant of customer loyalty in mobile banking, closely linked to customer satisfaction. Therefore, the study offers a research hypothesis:

- H_3. Assurance of service quality significantly and positively influences customer satisfaction in Saudi banking industry.

2.9. Empathy

A company that offers the services wants to prioritize its consumers. Empathy is being attentive, helpful, and considerate of others' needs. The fundamental goal of empathy is to make customers feel unique and special. Treating consumers like individuals, empathizing with their needs, and providing personalized or customer care are all part of the empathy (Song et al., 2022). For example, Khan and Fasih (2014), in their study on the Pakistani banking sector, found a significant positive relationship between empathy (in terms of personalized attention and understanding customer needs) and customer satisfaction.

In a study conducted in Pakistan, Zameer et al. (2015) also found that empathy significantly influenced customer perceived value, which impacted customer satisfaction. Similarly, Shanka's (2012) research on the Ethiopian banking sector revealed that empathy, particularly in terms of individualized attention to customers and understanding their specific needs, was a key predictor of customer satisfaction. In a study by Santouridis and Trivellas (2010) on mobile telephony in Greece, empathy impacted customer satisfaction significantly. Awan, Bukhari, and Iqbal (2011), in their comparative study of conventional and Islamic banks in Pakistan, highlighted that empathy significantly influenced customer satisfaction in both types of banks. Therefore, the study offers a research hypothesis:

- H$_4$. Empathy of service quality significantly and positively influences customer satisfaction in Saudi banking industry.

2.10. Tangibles

Tangibles, an essential service quality dimension, refer to a service provider's physical facilities, equipment, staff, and communication materials. According to Yusup (2019), tangibles are physical facilities that give a physical impression that customers would use to judge quality. These tangibles contain images of the expediency, effectiveness, and services of transactions and the tools, machinery, and actual locations required to provide services. Awara et al. (2022) assert that tangibles are just as significant as empathy. The authors contend that operational hours should be included under empathy and overdraft privileges should be included under the reliability dimension. Consumers, especially new ones, will evaluate the quality of the service using this dimension's visual representations or images. Even though they regularly use tangibles, many service businesses use this dimension to build their brand, provide consistency, and convey quality to customers. Most organisations combine tangibles with another aspect when developing a service quality strategy (Alam and Noor, 2020). In banking, tangibles include:

- The physical appearance of the bank branch;
- The quality of the ATMs;
- The professionalism of the bank's employees;
- The clarity of written documents.

Several studies have underscored the significant role of tangibles in influencing customer satisfaction in banking services. For instance, Khan and Fasih (2014) found a significant positive relationship between the tangibles (such as the physical infrastructure and employees' appearance) and customer satisfaction in the Pakistani banking sector. Similarly, in their study of banks in Penang, Malaysia, Kheng et al. (2010) found that the tangible aspects of service quality significantly influenced customer loyalty, which is closely related to customer satisfaction.

A study conducted by Awan et al. (2011) found that tangibles, especially in terms of the physical environment and appearance of the bank, significantly influenced customer satisfaction in both conventional and Islamic banks in Pakistan. Ravichandran et al. (2010) also found that tangibles were a significant determinant of customer satisfaction in their study of applying the SERVQUAL model. Their findings highlight the importance of physical facilities, equipment, and staff in shaping customer perceptions of service quality and satisfaction. In a cross-cultural study by Sampaio et al. (2017), the tangibility of mobile banking apps was a significant factor influencing customer satisfaction. Therefore, the study offers a research hypothesis:

- H$_5$. Tangibles of service quality significantly and positively influences customer satisfaction in Saudi banking industry.

The primary purpose of this study is to investigate the impact of service quality constructs on customer satisfaction in Saudi Arabian banking, building on the existing body of knowledge and addressing the gap in contextual influence of service quality dimensions. This research attempts to inform Saudi Arabian banking academia and practitioners by understanding the subtle effects of various service quality factors in a

culturally diverse setting.

The theoretical model illustrates the hypothesized relationships between five dimensions of service quality (responsiveness, reliability, assurance, empathy, and tangibles) as independent variables and customer satisfaction as the dependent variable (**Figure 1**). Each hypothesis (H_1 to H_5) posits a direct impact of one of the service quality dimensions on customer satisfaction.
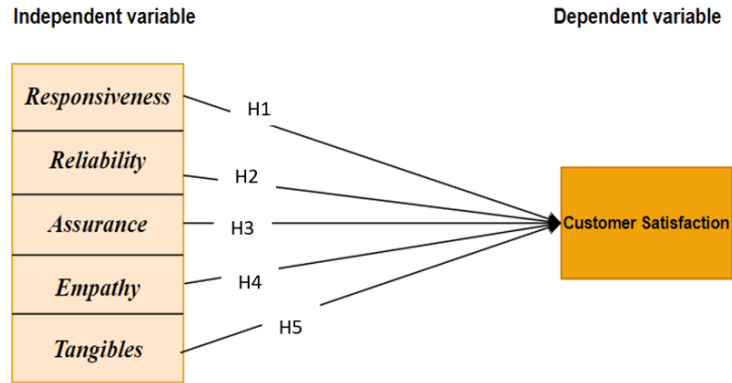

Figure 1. Theoretical model.

3. Research methodology

3.1. Research method

The study used quantitative research to examine customer satisfaction with commercial banks' mobile banking services and client expectations for mobile banking's introduction. Quantitative research uses numerical data from a subset of the universe to generalise its findings. There are different studies that used the same methodology as a quantitative survey to test the impact of service quality on customer satisfaction (Afthanorhan et al., 2019; Alam and Noor, 2020; Ali et al., 2021; Ali et al., 2021; Al-Okaily et al., 2021; Awan et al., 2011; Awara et al., 2022; De Bruin et al., 2021). Research used descriptive statistics including modes, means, and frequency. A descriptive design for quantitative research was utilised to see if certain characteristics affected user satisfaction with mobile banking.

3.2. Procedure for data collection

This study uses a conceptual model with five service quality dimensions (responsiveness, reliability, assurance, empathy, and tangibles) as independent variables and customer satisfaction as the dependent variable to fully address the methodology. Each dimension has multiple Likert scale items in the questionnaire. Saudi bank customers from diverse demographics are participants to ensure representativeness. Cronbach's Alpha ensures construct reliability and internal consistency from the previous studies (Afthanorhan et al., 2019; Alam and Noor, 2020; Ali et al., 2021; Ali et al., 2021; Al-Okaily et al., 2021; Awan et al., 2011; Awara et al., 2022; De Bruin et al., 2021). SEM tests the hypothesized relationships between service quality factors and customer satisfaction. The reliability and validity of the survey instruments were higher >0.70. This rigorous methodological approach ensures the findings' reliability and validity, providing actionable insights to improve Saudi

banking service quality.

3.3. Survey questionnaire

It is important to note that any data gathering process involving banks, especially customer data, must comply with local and international data protection rules and regulations. The Personal Data Protection Law applies in Saudi Arabia. Data gathering begins with determining study goals and data type. Data may include demographics, customer behaviour, or perception. Data collecting type and method depend on study aims.

A questionnaire is created based on data needs. Before gathering bank data, authorization was requested. This involves outlining the research goals to bank authorities and requesting data collection approval. Further ethical approval from the researcher's institution may be needed. After permission, a sample plan was created. Determine how many customers were studied and how they were picked. Data were obtained using the approved instrument. This may entail customer surveys, interviews, or focus groups. Online surveys or digital analytics tools may collect data for online or digital banking services, respecting user privacy and consent. Data was reviewed for completeness and accuracy after collection. This may involve screening for missing survey replies or data correctness.

The study targeted four Saudi commercial bank customers. The researcher used simple random sampling, a common quantitative approach research method, because any client of these commercial banks might be selected for this study. The survey sampled 250 mobile banking customers from all four commercial banks. Each commercial bank and mobile banking service was represented fairly. Participants used their banks' mobile banking services.

3.4. Data analysis

IBM SPSS is a robust and versatile software for statistical data analysis (Agi and Ngai, 2020). It offers a range of advanced functions for managing data and running complex statistical analyses. The study used IBM SPSS software to do an analysis that could be used in SPSS for analyzing data collected from Saudi banks: Descriptive statistics summarize and organize a set of data characteristics. As well, regression analysis was used to explore the relationship between a set of service quality factors and customer satisfaction.

4. Results

Table 1 shows the mean scores and standard deviations for various constructs related to customer satisfaction in a banking context. The mean scores suggest that respondents perceive these constructs positively, as all means are above the midpoint (3 on a scale of 1–5 or 7). The construct with the highest average rating is tangibility ($M = 4.42$, SD = 1.023), suggesting that the physical aspects of the service, such as the availability of facilities, equipment, personnel, and communication materials, are highly appreciated by the customers. However, this construct also shows the highest standard deviation, indicating a higher response variability than other constructs.

Table 1. The descriptive statistics of the constructs.

Constructs	Mean	Std. Deviation
Reliability	4.37	0.7080
Assurance	4.39	0.6430
Empathy	4.32	0.749
Tangibility	4.42	1.023
Responsiveness	4.31	0.670
Customer Satisfaction	4.33	0.804

The construct with the second-highest mean score is assurance ($M = 4.39$, SD = 0.643), which suggests that customers feel the bank's employees are knowledgeable and courteous and can convey trust and confidence. The low standard deviation indicates that responses are generally consistent around the mean. The construct with the lowest mean score is responsiveness ($M = 4.31$, SD = 0.670), but it is still above the midpoint, suggesting a positive evaluation. Responsiveness refers to the willingness or readiness of employees to provide service, including timeliness of service. Finally, the overall customer satisfaction has a mean score of 4.33 with a standard deviation of 0.804, indicating that customers are generally satisfied with the service they receive from the bank. Finally, the results indicate that customers generally have positive perceptions of service quality and are largely satisfied. However, banks could focus on enhancing responsiveness, which received the lowest score, to improve customer satisfaction further.

Table 2 shows the Pearson's correlation of the constructs. The results show that each construct is positively and significantly correlated with each others. Gregorich et al. (2021) express multicollinearity as a correlation among more than two independent variables. Multicollinearity occurs when there is a high correlation (0.9 or more) between any independent variable and the other independent variables. In other words, when the correlation coefficient is zero, multicollinearity is lacking. When the correlation coefficient is one, there is an extern case of multicollinearity. Also, the results confirm that there is no indication of multicollinearity problems (Kim, 2019).

Table 2. Pearson's correlation of the constructs.

Variables	Reliability	Assurance	Empathy	Tangibility	Responsiveness	Customer satisfaction
Reliability	1	-	-	-	-	-
Assurance	0.603**	1	-	-	-	-
Empathy	0.626**	0.760**	1	-	-	-
Tangibility	0.469**	0.603**	0.662**	1	-	-
Responsiveness	0.687**	0.624**	0.753**	0.571**	1	-
Customer Satisfaction	0.668**	0.759**	0.710**	0.655**	0.735**	1

**Correlation is significant at the 0.01 level.

Table 2 represents the relationships between various constructs: reliability, assurance, empathy, tangibility, responsiveness, and customer satisfaction. Finally, the findings are significant at the 0.01 level (2-tailed), as indicated by the double asterisks (**). All the constructs show positive correlations, indicating that as one construct

improves, the others also tend to improve. Reliability shows moderate to strong positive correlations with all other constructs, with the highest correlation seen with responsiveness ($r = 0.687$). This implies that the reliability of the bank's services is closely tied to how quickly and effectively the bank responds to customer needs and problems. Assurance also shows moderate to strong positive correlations with all other constructs, with the highest correlation with customer satisfaction ($r = 0.759$).

Empathy demonstrates strong positive correlations with all other constructs, with the strongest correlation with responsiveness ($r = 0.753$). This suggests that a bank's ability to provide caring, individualized attention to its customers is linked with its responsiveness to customer needs. Tangibility shows moderate positive correlations with all other constructs, with the highest correlation seen with empathy ($r = 0.662$). This implies that the physical aspects of the bank's service are related to the extent to which the bank can provide individualized and caring service. Responsiveness exhibits strong positive correlations with all other constructs, with the strongest correlation with customer satisfaction ($r = 0.735$). This suggests that the more responsive the bank is to customer needs and requests, the higher the level of customer satisfaction. Finally, customer satisfaction correlates strongly with all other constructs, which implies that improvements in any of the constructs (reliability, assurance, empathy, tangibility, and responsiveness) are likely to enhance customer satisfaction.

Cronbach's alpha is measured to assess the reliability of the variables. Cronbach's alpha is the most common measure of the reliability of scales when the study uses multiple Likert questions in the questionnaire. Falahat et al. (2019) suggest that if Cronbach's alpha is 0.7 or higher, considered good reliability. The results presented in **Table 3** reported that Cronbach's alpha of the scales ranges between (0.747–0.902) which is higher than the accepted value (0.70); therefore, the reliability of the scales is excellent. Moreover, the results indicated that the Cronbach's alpha of the overall reliability of the scales is (0.960), which indicates that the overall scales' reliability is very good.

Table 3. Cronbach's alpha.

Constructs	*N*	Number of items	Cronbach's Alpha
Reliability	249	5	0.841
Assurance	249	5	0.779
Empathy	249	5	0.860
Tangibility	249	3	0.841
Responsiveness	249	5	0.747
Customer satisfaction	249	5	0.902
Overall	249	28	0.960

Table 4 and **Figure 2** present the results of a regression analysis, where the five service quality constructs (reliability, assurance, empathy, tangibility, and responsiveness) are predictors of customer satisfaction. The standardized coefficients (Beta values) represent the strength and direction of the relationship between each predictor and the outcome variable, customer satisfaction. Reliability shows a positive relationship with customer satisfaction ($\beta = 0.110$), which is a significant at the 0.01

level ($t = 3.336$, $p = 0.001$). Therefore, the hypothesis that reliability influences customer satisfaction is supported. The findings are consistent with the studies of Afthanorhan et al. (2019), Alam and Noor (2020), Ali et al. (2021) and Arcand et al. (2017). Assurance, however, does not show a significant link with customer satisfaction ($\beta = 0.031$, $t = 0.746$, $p = 0.457$). The *p*-value is more significant than 0.05, suggesting that the effect of assurance on customer satisfaction is not statistically significant. Therefore, the hypothesis that assurance influences customer satisfaction is not supported. The findings are contrary to the studies of Afthanorhan et al. (2019), Alam and Noor (2020), Ali et al. (2021) and Arcand et al. (2017).

Table 4. Regression coefficients.

Service quality constructs	Standardized Coefficients	*T*	Sig.	Results
Reliability	0.110	3.336	0.001	Supported
Assurance	0.031	0.746	0.457	Not supported
Empathy	0.571	12.320	0.000	Supported
Tangibility	0.304	6.770	0.000	Supported
Responsiveness	−0.009	−0.217	0.828	Not supported

Empathy has a strong, positive, statistically significant relationship with customer satisfaction ($\beta = 0.571$, $t = 12.320$, $p = 0.000$). This suggests that empathy significantly influences customer satisfaction; thus, the hypothesis is supported. The results are alighned with the previous studies such as Afthanorhan et al. (2019), Alam and Noor (2020), Ali et al. (2021) and Arcand et al. (2017). Tangibility also shows a positive and statistically significant relationship with customer satisfaction ($\beta = 0.304$, $t = 6.770$, $p = 0.000$). Therefore, the hypothesis that tangibility influences customer satisfaction is supported. The results are aligned with Afthanorhan et al. (2019), Alam and Noor (2020), Ali et al. (2021) and Arcand et al. (2017). Responsiveness does not show a statistically significant relationship with customer satisfaction ($\beta = −0.009$, $t = −0.217$, $p = 0.828$). The negative beta value suggests that increased responsiveness might slightly decrease customer satisfaction, but the *p*-value indicates that this effect is not statistically significant. Therefore, the hypothesis that responsiveness influences customer satisfaction is not supported. Finally, among the five service quality constructs, reliability, empathy, and tangibility significantly impact customer satisfaction, while assurance and responsiveness do not significantly influence customer satisfaction. Therefore, to enhance customer satisfaction, banks should focus on improving the reliability of their services, providing empathetic and personalized services, and enhancing the physical aspects of their service delivery.

The model summary result is presented in **Table 5**. The results showed that the value of *R* square is 0.872 and the adjusted *R* square is 0.87, indicating that 87% of the dependent variable changes (customer satisfaction) is calculated by the independent variables (reliability, assurance, empathy, tangibility, and responsiveness). Therefore, the independent variables are the good predictors of the dependent variable, to be the values that affect customer satisfaction with mobile banking.
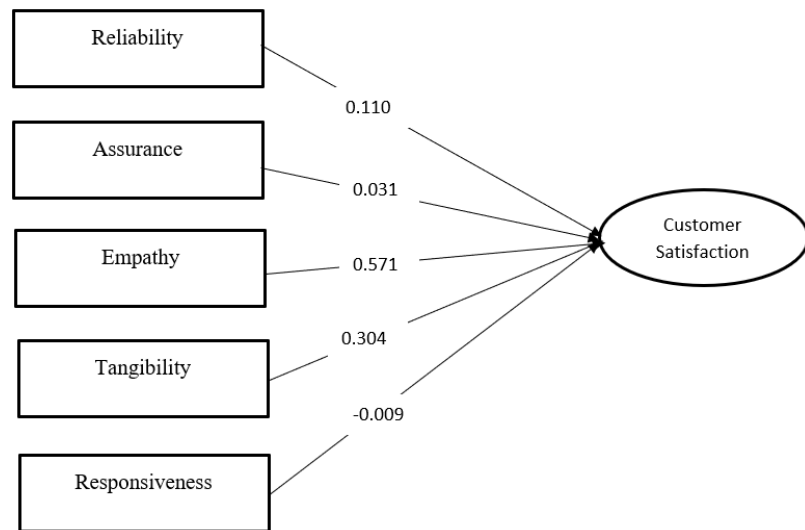
Figure 2. Path model.

Table 5. The model summary result is presented.

Model	*R*	*R* square	Adjusted *R* square	Std. Error of the Estimate
1	0.934[a]	0.872	0.870	0.29038

a. Predictors: Reliability, assurance, empathy, tangibility, and responsiveness.

Analysis of variance (ANOVA) is shown in **Table 6**, the results are significant ($F = 332.18$, $p = 0.000$) with a *p*-value of less than 0.001, so any given change in one of the independent variables will always produce a corresponding change in the dependent variable.

Table 6. Analysis of variance (ANOVA).

Model		Sum of Squares	df	Mean Square	*F*	Sig.
	Regression	140.05	5	28.010	332.18	0.000
1	Residual	20.490	243	0.084	-	-
	Total	160.54	248	-	-	-

5. Discussion

The study describes its findings after testing its hypothesis. Five service quality constructs—reliability, assurance, empathy, tangibility, and responsiveness—were examined in relation to Saudi banking customer satisfaction. Khan and Fasih (2014) and Amin (2016) found that reliability increased customer satisfaction. Banks that provide precise and reliable transactions improve client happiness. To ensure clients receive consistent service, banks should invest in robust systems and qualified staff. In contrast to Siddiqi (2011), assurance did not affect customer pleasure as much. Customers may value digital platform user-friendliness, accessibility, and security over bank staff guarantee as digital banking grows.

Empathy positively correlated with customer satisfaction, supporting Zameer et al. (2015). It shows that clients value personalised and attentive services. Thus, banks should understand their clients' demands and offer tailored services to improve satisfaction. Tangibility also increased consumer happiness, supporting Lau et al.

(2013). Despite the rise of online banking, the appearance of the bank's facilities, equipment, and staff still affects customer satisfaction.

Responding did not affect consumer satisfaction, contrary to Arcand et al. (2017). Last, reliability, empathy, and tangibility significantly affect consumer happiness, according to the study. These findings suggest that banks should prioritise reliability, empathy, and tangible service delivery to increase customer happiness. Since reliability affects client satisfaction, banks must provide high-quality, accurate, and reliable services. Managers should invest in cutting-edge banking technologies to improve transaction accuracy and eliminate system mistakes. Bank personnel should also benefit from frequent training to provide reliable services. Empathy boosts client happiness, emphasising the need for personalised and caring services. Banks should comprehend clients' particular needs and expectations.

The physical facilities of banks should be well-maintained, attractive, and comfortable. Professional attire and good staff presentation are also important. In this study, assurance and responsiveness did not significantly affect customer happiness, but they should not be ignored. Banks should reconsider their tactics for these structures. Given the advent of digital banking, digital platform security may be prioritised for assurance. While timeliness is expected, how quickly and effectively the bank responds to service outages can affect client satisfaction. Customer expectations change.

To track consumer happiness over time and identify causal linkages, future research should employ longitudinal studies. To generalise findings, future study could be done in diverse geographical and cultural contexts. Digital banking services, perceived value, and customer trust may predict banking consumer happiness in future studies. Customers' service quality perceptions could be better understood by in-depth interviews or focus groups. Future study may use experimental or quasi-experimental methodologies to examine service quality and customer satisfaction interventions.

6. Conclusion

The study was conducted in the banking industry of Saudi Arabia using a survey questionnaire. The regression analysis results show that of the five service quality dimensions, reliability, empathy, and tangibility have a significant positive impact on customer satisfaction in the Saudi banking sector. This demonstrates that customers place a high value on consistent and dependable service (reliability), personalized and caring interactions (empathy), and the physical aspects of the service environment. Assurance and responsiveness, on the other hand, had no significant effect on customer satisfaction. This suggests that, in this context, factors such as employee knowledge and courtesy (assurance) and promptness and willingness to assist (responsiveness) are less important to customers than the other dimensions. These findings highlight the importance of improving reliability, empathy, and tangibility to improve customer satisfaction in the Saudi banking industry.

Despite the valuable insights gained from this study, a few limitations were noted. The study focuses solely on the Saudi banking sector, which may limit the findings' applicability to other regions or industries. Furthermore, the study's cross-sectional design captures customer perceptions at a single point in time, which may miss

changes in customer satisfaction and service quality over time. The use of self-reported data in questionnaires may also introduce response bias, as participants may provide socially desirable answers rather than their true experiences.

Future research should address these limitations by broadening the scope to include more regions and sectors, thereby increasing the generalizability of the findings. Longitudinal studies could provide more information about how customer satisfaction and service quality perceptions change over time. Furthermore, using a mixed-methods approach that includes qualitative data from interviews or focus groups could improve our understanding of customer experiences and expectations. Future research could also look into new dimensions of service quality or the role of emerging technologies in shaping customer satisfaction.

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