Perception and Opinion of Customers toward Automated Teller Machine Services with Special Reference to Kurdistan Region

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Abstract—**Modern technology has changed human life by making it faster and easier. Technology innovation emerged as a source of competitive strength and can achieve success through new innovation. Automated teller machine (ATM) plays a vital role in the banking industry by providing all necessary banking facilities in an easy and handy way to their customers at their doorstep. As Kurdistan is growing economy, therefore, to assess the perception and expectation of ATM customers, 315 respondents from different places of the Kurdistan Region were taken into consideration. This study is based on the personal approach and observation. The structured questionnaire administered after taking opinion and modification by banking personal, customer discussion, and review of literature. For the convenience of respondents, Likert measurement scales were used. To identify most service quality dimensions in connection with overall customer satisfaction, reliability test, descriptive analysis, correlation and coefficient, and regression analysis test and ANOVA tests are done through SPSS 25.0. In the end, it is concluded that most of the factors are positively, significantly correlated with overall customer satisfaction. Based on personal discussion with customers and bank officials and literature reviews, recommendations are mentioned at the end.**

Keywords—**Automated teller machine, Challenges, Cost, Satisfaction, Security, Service quality.**

I. Introduction

Automated teller machine (ATM) is like a banking outlet. It provides variety of facilities (as banking) include cash deposit, cash withdrawal, immediate cash transfer, mini statement, balance inquiry, password change, bill payment, cheque book request, receipt for transactions, and many more at customers convenient places. For this customer need not go physically in bank, ATM is placed at all important places, namely, hospitals, hotels, malls, and all types of market in short place. Customers save their precious time by avoiding to go at the bank, no need to carry cash which may cause any kind of threat, insecurity, crime, saves transportation cost, immediate service and get 24 × 7 non-stop banking services and facilities at their near places.

Due to the high potential for banking sector in Kurdistan Region, many foreign banks started opening their branches in the region. BBAC, Byblos Bank, Turkey's Vakifbank, IBL Bank, and Bank Asya are few names of foreign banks in regions (Reform and Investment Finance). Seven state-own banks, 47 private sector banks (15 foreign and 9 Islamic) consist in the banking sector. About 87% banking sector hold by the largest three banks, namely, Rafidain Bank, Rasheed Bank, and Trade Bank of Iraq (Reform and Investment Finance).

The number of research studies has been carried out on issues concerned with internet banking in countries such as UK, USA Malaysia, Australia, Finland, and Singapore (Sathye, 1999). No satisfactory work has been worked out in Kurdistan Region. Therefore, this research has intention to find out various determinants/dimensions/criteria to satisfy customer need pertaining to ATM services. Cost effectiveness, easiness, convenience, system availability, E-fulfillment, security and responsiveness, efficiency, and contact are most important service quality dimensions of ATM service (Sathye, 1999).

II. Due to the Importance of ATM Services Study, the Following are the Objectives of the Study

- To determine significant factors of ATM services qualities that create an impact on customer satisfaction
- To measure the customer satisfaction level
- To recommend necessary suggestions being observed during the study for further improvement in service quality of ATM in the Kurdistan Region.

III. Limitation of the Study

- Primarily survey was conducted at different places of the Kurdistan Region

TABLE I
RESPONDENTS DEMOGRAPHIC INFORMATION STATISTICS

		Gender	Age (in years)	Marital status	Education qualification	Occupation/ economic activity	Family monthly income	Purpose of using automated teller machine card	How many times do you use in a week?
N	Valid	315	315	315	315	315	315	315	315
	Missing	0	0	0	0	0	0	0	0

TABLE II
RESPONDENTS DEMOGRAPHIC PROFILES (%)

	Frequency	Percent
Gender		
Male	134	42.5
Female	181	57.5
Total	315	100
Age (in years)		
18–20	47	14.9
21–30	140	44.4
31–40	77	24.4
41–50	38	12.1
Above 50	13	4.1
Total	315	100
Marital status		
Unmarried	43	13.7
Married	119	37.8
Divorced	70	22.2
Widow	52	16.5
Separated	31	9.8
Total	315	100
Educational qualification		
School level	68	21.6
High school	84	26.7
10+2	36	11.4
Graduation	47	14.9
Post-graduation	71	22.5
Other	9	2.9
Total	315	100
Educational qualification		
School level	68	21.6
High school	84	26.7
10+2	36	11.4
Graduation	47	14.9
Post-graduation	71	22.5
Other	9	2.9
Total	315	100
Occupation/economic activity		
Student	84	26.7
Employee government job	72	22.9
Employee private job	81	25.7
Businessman	47	14.9
Other	31	9.8
Total	315	100
Family monthly income		
Below $500	62	19.7
Between $ 501 and $1000	64	20.3
Between $1001 and $ 1500	110	34.9
Between $1501 and $ 2000	64	20.3
Between $2001 and $ 2500	13	4.1
Above $2500	2	0.6
Total	315	100
Purpose of using automated teller machine card		
Cash withdrawal	51	16.2
Balance check	105	33.3
Shopping	69	21.9
Other	90	28.6
Total	315	100
How many times do you use in a week?		
<3 times	88	27.9
3–5 times	105	33.3
6–8 times	76	24.1
More than 8 times	46	14.6
Total	315	100

Source: Author calculation in SPSS

TABLE III
RELIABILITY STATISTICS

Cronbach's alpha	Cronbach's alpha based on standardized items	N of items
0.816	0.817	15

TABLE IV
CASE PROCESSING SUMMARY

		n	%
Cases	Valid	315	100.0
	Excluded[a]	0	0.0
	Total	315	100.0

[a]Listwise deletion based on all variables in the procedure

- Sample size was limited due to time constraint
- Results are based on information provided by the respondents.

IV. LITERATURE REVIEW

Shakhawat et al. (2015) did analysis on significant factors affecting the quality of ATM services in Dhaka city. After collecting primary data results show that ATM network, cost of ATM services, security in transactions at ATM, ATM location centers, and limit on maximum withdrawal per day are the core factors affecting customer satisfaction. Worako (2018) assessed customers satisfaction and prominent constraints and challenges of ATM services. Descriptive statistical tools were used. Assessment shows negative influence on customer saving rate. Customers found moderately satisfied. The major problems were network interruption, limited amount withdrawal per day, retention of card, and non-suitability of installation place for disability people. Studied on impact on ATM services on the customers savings/withdrawal of commercial banks of Ethiopia, Akaki branch. Kaur and Gupta (2013) predicted customers behavior intentions with concern to ATM services (Self-Service Technologies). At the results found that bank customers are less optimistic to try new technologies. Issahaku (2013) investigated the experiences of Ghana Commercial Bank and Barclays Banks customers with ATM in Tamale Metropolis. Descriptive statistics and multiple regression analysis used for data analysis. As per customers opinion, ATM is convenient, speedy, secured, reliable, and cost effectiveness. ATM challenges are machine running out of cash, link failure, and taking long time to dispensing cash. Based on beta values, three most important dimensions of satisfaction were promptness of card issue, safety-security, and cost effectiveness. Ivica et al. (2015) present step-by-step cost-benefit analysis (CBA) of automatic deposit service of ATM. In first steps author determine users' attitude toward ATM

TABLE V
ITEM-TOTAL STATISTICS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlations	Cronbach's alpha if item deleted
Cost of services of ATM	44.15	75.104	0.398	0.446	0.809
ATM network capacity	44.03	75.216	0.473	0.566	0.803
Location of ATM centers	44.11	76.740	0.381	0.441	0.809
Security in transactions of ATM	44.10	77.602	0.306	0.369	0.815
Sufficient number of ATMs	44.20	75.239	0.440	0.476	0.805
Screen language of your ATM	43.75	80.176	0.242	0.266	0.817
Processing of transaction	43.76	75.158	0.472	0.396	0.803
Keypad of ATM machine	43.96	75.495	0.427	0.484	0.806
Maximum withdrawal limit per day	43.92	73.806	0.548	0.606	0.798
Quality of notes (currency)	43.86	74.433	0.497	0.559	0.801
The behavior of ATM personnel or guard	43.79	76.052	0.442	0.514	0.805
Instruction clarity to operate ATM	43.89	75.281	0.464	0.543	0.803
Availability of power back up/generator/inverter	44.12	75.540	0.450	0.509	0.804
Cash availability	43.99	74.815	0.516	0.609	0.800
Claim (technical) complaint	44.15	76.333	0.408	0.495	0.807

ATM: Automated teller machine

TABLE VI
SCALE STATISTICS

Mean	Variance	Standard deviation	Number of items
47.13	85.888	9.268	15

Source: Author calculation in SPSS

automatic deposit service using technology acceptance model (TAM). Second step to determine ATM location priorities using analytic hierarchy process (AHP) model. Research resulted with highly efficient application of CBA for evaluating cost and benefits of automatic deposit services. Genevois et al. (2015) emphasized on efficient cash management system at ATM. To forecast demand model historical cash demand data pertaining to ATM location is very important. Rameshkumar and Shanmugananda (2016) attempted to find awareness and satisfaction among the ATM users. Results revealed that customers are not satisfied with grievance settlement. Sadekin and Shaikh (2017) emphasized on practice, impact, and security status of ATM booths at Bangladesh. From 120 respondents, 38 bankers and 72 were bank customers. Major findings are ATM cardholders feels insecurity from hijacker in Bangladesh while using card at ATM center. Kumbhar (2011) tried to find out key factors which influence customer satisfaction toward ATM services provided by public and private sector banks. In comparison it is observed that private banks are providing better satisfactory services in comparison with public sector banks. Cost effectiveness, easy to use, and responsiveness at ATM creates significant influence in customer satisfaction. Vladislav (2015) evaluated proposed system design (predictive encashment strategy) on real-world data from one Russia Bank. Author proposed a strategy which can decrease total expenses on ATM network management by 18% and could be adopted for bank operations and many other industry-oriented tasks which deals with supply chain management. Lewis et al. (1994) assessed students' attitudes toward their bank services. Graphic positioning scale was used to measure students' expectations and perceptions and found huge shortfalls in service quality. Dilijonas et al.

(2009) discussed on quality management of self-service and its evaluation framework. By the improvement in quality of operation, resources and marketing services it is tried to ensure sustainable service provision to banking clients. ATM replenishment specifics, ATM service quality delivery, and ATM service delivery structure, these three factors were evaluated. It is found that social responsibility is the key point for sustainable development and improves loyalty of users. For this, it is necessary to apply conceptual models which consist of marketing, operations, and resources. Komal and Sultan (2009) has done comparative study on impact of ATM on customer satisfaction of State Bank of India, ICICI Bank, and HDFC Bank. It is briefed about services provided by these three banks. Primary data have been collected through questionnaire and interview. Sivakumar et al. (2017) examined the public sector banks ATM service quality. It is suggested that banks must be take care of customers' preferences with regard to the transaction fee, promptly ATM card delivery, and reissue another new card in case of first misplaced timely. Osaremwinda (2018) investigated queuing modeling approach on ATM service optimization. Three queuing models (a single-queue and single-server model, single-queue and multi-server model, and multiple queue and multi-server mode) were analyzed. It concluded 1–5 min could be waiting time. Using two server system provides least cost to bank. Weerasiri and Koththagoda (2017) did survey to find out impact of ATM service quality toward the customers satisfaction. Structured questionnaire was used to collect data. Regression, ANOVA, and *t*-test used to determine significant factors and frequency analysis used to analyze customer satisfaction level. In analysis, it is found that ATM service quality has positive impact on customer satisfaction level and also found age and education qualification have moderate relation with ATM service quality. According to Surjadjaja et al., (2003), growth of internet has provided quality services to service sector industries. The author did a critical study of existing literature to find out essential determinants to obtain better insights. This may help to companies for

TABLE VII
DESCRIPTIVE STATISTICS

	Statistic			Std. Error	Median	95% Confidence interval for mean	
	n	Mean	Std. Deviation			Lower bound	Upper bound
Cost of services of ATM	315	2.97	1.314	0.074	3.00	2.83	3.12
ATM network capacity	315	3.10	1.141	0.064	3.00	2.98	3.23
Location of ATM centers	315	3.02	1.167	0.066	3.00	2.89	3.15
Security in transactions of ATM	315	3.03	1.249	0.070	3.00	2.89	3.17
Sufficient number of ATMs	315	2.92	1.205	0.068	3.00	2.79	3.06
Screen language of your ATM	315	3.38	1.059	0.060	3.00	3.26	3.50
Processing of transaction	315	3.37	1.150	0.065	3.00	3.24	3.50
Keypad of ATM machine	315	3.17	1.206	0.068	3.00	3.04	3.31
Maximum withdrawal limit per day	315	3.21	1.145	0.065	3.00	3.08	3.33
Quality of notes (currency)	315	3.27	1.175	0.066	3.00	3.14	3.40
The behavior of ATM personnel or guard	315	3.34	1.115	0.063	3.00	3.21	3.46
Instruction clarity to operate ATM	315	3.23	1.152	0.065	3.00	3.11	3.36
Availability of power back up/generator/inverter	315	3.01	1.1.54	0.065	3.00	2.88	3.13
Cash availability	315	3.13	1.104	0.062	3.00	3.01	3.26
Claim (technical) complaint	315	2.97	1.154	0.065	3.00	2.97	2.85
Overall customer satisfaction	315	2.97	1.249	0.070	3.00	2.97	3.11
Valid *n* (listwise) (total mean)	315	3.13	1.17	0.066	3	3.02	3.25

Source: Author calculation in SPSS

better design of e-service operations. Yeliz et al. (2019) says managing network of ATMs becoming difficult because increasing greater rate of users. It requires efficient inventory and preparing replenishment optimal policies. The author introduced an approach for optimal replenishment amounts which help in minimizing the total cost of money holding. The planner must take care of historical cash demand at the time of planning.

V. RATIONALITY OF STUDY

In July 2018, a survey was conducted in Kurdistan Region Iraq and according to demographic report, 35% are young population (<15 years) active age is 61% and only 4% above 65 years. The population of working age is improved in comparison with 1987. As per the report shows 100 males per 100 females, it means population is gender balanced. Services are considered a key element in any form of production and for regional connectivity. The region could become a better platform for transition and provision of services and it has large potential markets (Demographic Survey Report of Kurdistan Region, July 2018; World Bank Group, 2016). Uses of ATM services became very popular throughout the world because of its wide adoption of electronic financial transactions and efficient access to financial services in most countries (Kumbhar, 2012). Uses of ATM services cater to effective services on behalf of the banking industry. Customer is the king of the market and they have infinite expectations from various services industries as per their convenient. For uses of ATM income level, region, culture does not matter. Hence, to attract more customers toward the banking industry and use of the ATM banking industry must know customers opinions and expectations. Keeping this point in mind this research work has been carried out in Kurdistan Region.

VI. METHOD OF CONDUCTING RESEARCH

For the study purpose, primary data from 315 ATM users of public and private sectors bank belongs to different places of the Kurdistan Region were collected through a convenience sampling method. Extensive literatures were reviewed, personal discussion made with ATM users, banking official opinion and recommendation was considered while designing the questionnaire. It was segregated into two parts, namely, first in demographic information of ATM users and second in various perceptions about ATM service quality from them. To save precious time of respondents, the Likert scale (1=strongly disagree to 5=strongly agree) used to measure the different parameters of satisfaction. To analyze collected data SPSS 25.0 software is used. Reliability test conducted and whose parameters were above 0.70 in Cronbach's alpha only those parameters are considered for further study. Multiple regression and correlation analysis performed to identify significant factors affecting respondent's satisfaction.

VII. DATA ANALYSIS AND DISCUSSION

A. Respondents Demographic Information

Table I shows the validity of responses. All respondents responded to all the questions, and no question answer is missing. Table II shows the demographic presentation of respondents. About 42.5% and 57.5% respondents are male and female, respectively. Highest users, i.e., 59.3% are at very young age between 18 and 30 years. About 13.7% and 37.8% are unmarried and married, respectively. Almost all have taken their basic education qualification. It should be noted that most, i.e., 26.7% of users are students, 22.9 Govt. job employees, and 25.7% are private job employees. Maximum users belong to the monthly income levels between $1001 and $1500 (34.9%). Only 16.2% respondents are using ATM for cash withdrawal due to feeling of insecurity in the ATM

TABLE VIII
ATM Service Qualities Correlations Coefficient

Correlations		Cost of services of ATM	ATM network capacity	Location of ATM centers	Security in transactions of ATM	Sufficient number of ATMs	Screen language of your ATM	Processing of transaction	Keypad of ATM machine	Maximum withdrawal limit per day	Quality of notes (currency)	The behavior of ATM personnel or guard	Instruction clarity to operate ATM	Availability of power back up/ generator/ inverter	Cash availability	Claim (Technical) Complaint	Overall Customer Satisfaction
Cost of services of ATM	Pearson correlation	1	0.618**	0.318**	0.195**	0.363**	0.092	0.268**	0.276**	0.209**	0.178**	0.069	0.027	0.120*	0.064	0.164**	0.176**
	Sig. (two-tailed)		0.000	0.000	0.001	0.000	0.105	0.000	0.000	0.000	0.002	0.223	0.632	0.033	0.258	0.004	0.002
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
ATM network capacity	Pearson correlation	0.618**	1	0.274**	0.159**	0.538**	0.311**	0.352**	0.406**	0.177**	0.141*	0.046	0.067	0.123*	0.101	0.135*	0.168**
	Sig. (two-tailed)	0.000		0.000	0.005	0.000	0.000	0.000	0.000	0.002	0.012	0.419	0.239	0.029	0.075	0.016	0.003
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Location of ATM centers	Pearson correlation	0.318**	0.274**	1	0.522**	0.329**	0.180**	0.339**	0.443**	0.104	0.033	0.046	0.030	0.047	0.082	0.045	0.099
	Sig. (two-tailed)	0.000	0.000		0.000	0.000	0.001	0.000	0.000	0.065	0.554	0.411	0.598	0.404	0.146	0.423	0.080
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Security in transactions of ATM	Pearson correlation	0.195**	0.159**	0.522**	1	0.368**	0.078	0.267**	0.168**	0.140*	0.025	0.011	0.026	0.095	0.096	0.144*	0.162**
	Sig. (two-tailed)	0.001	0.005	0.000		0.000	0.169	0.000	0.003	0.013	0.664	0.851	0.648	0.093	0.088	0.010	0.004
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Sufficient number of ATMs	Pearson correlation	0.363**	0.538**	0.329**	0.368**	1	0.377**	0.330**	0.208**	0.122*	0.068	-0.012	0.068	0.232**	0.154**	0.111*	0.149**
	Sig. (two-tailed)	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.030	0.226	0.837	0.229	0.000	0.006	0.049	0.008
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Screen language of your ATM	Pearson correlation	0.092	0.311**	0.180**	0.078	0.377**	1	0.301**	0.218**	0.153**	0.070	0.094	0.180**	-0.028	0.028	-0.070	-0.147**
	Sig. (two-tailed)	0.105	0.000	0.001	0.169	0.000		0.000	0.000	0.009	0.217	0.095	0.001	0.620	0.625	0.213	0.009
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Processing of transaction	Pearson correlation	0.268**	0.352**	0.339**	0.267**	0.330**	0.301**	1	0.551**	0.153**	0.191**	0.196**	0.235**	0.056	0.152**	0.091	0.099
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.009	0.001	0.000	0.000	0.323	0.007	0.107	0.079
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Keypad of ATM machine	Pearson correlation	0.276**	0.406**	0.443**	0.168**	0.208**	0.218**	0.551**	1	0.147**	0.179**	0.213**	0.221**	-0.047	0.155**	0.042	-0.001
	Sig. (two-tailed)	0.000	0.000	0.000	0.003	0.000	0.000	0.000		0.009	0.001	0.000	0.000	0.410	0.006	0.457	0.991
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315

(Contd...)

TABLE VIII
(Continued)

Correlations		Cost of services of ATM	ATM network capacity	Location of ATM centers	Security in transactions of ATM	Sufficient number of ATMs	Screen language of your ATM	Processing of transaction	Keypad of ATM machine	Maximum withdrawal limit per day	Quality of notes (currency)	The behavior of ATM personnel or guard	Instruction clarity to operate ATM	Availability of power back up/generator/inverter	Cash availability	Claim (Technical) Complaint	Overall Customer Satisfaction
Maximum withdrawal limit per day	Pearson correlation	0.209**	0.177**	0.104	0.140*	0.122*	0.009	0.153**	0.147**	1	0.698**	0.509**	0.378**	0.544**	0.482**	0.380**	0.417**
	Sig. (two-tailed)	0.000	0.002	0.065	0.013	0.030	0.873	0.007	0.009		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Quality of notes (currency)	Pearson correlation	0.178**	0.141*	0.033	0.025	0.068	0.070	0.191**	0.179**	0.698**	1	0.520**	0.474**	0.445**	0.405**	0.301**	0.351**
	Sig. (two-tailed)	0.002	0.012	0.554	0.664	0.226	0.217	0.001	0.001	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
The behavior of ATM personnel or guard	Pearson correlation	0.069	0.046	0.046	0.011	−0.012	0.094	0.196**	0.213**	0.509**	0.520**	1	0.635**	0.362**	0.388**	0.264**	0.232**
	Sig. (two-tailed)	0.223	0.419	0.411	0.851	0.837	0.095	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Instruction clarity to operate ATM	Pearson correlation	0.027	0.067	0.030	0.026	0.068	0.180**	0.235**	0.221**	0.378**	0.474**	0.635**	1	0.356**	0.529**	0.302**	0.149**
	Sig. (two-tailed)	0.632	0.239	0.598	0.648	0.229	0.001	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.008
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Availability of power back up/generator/inverter	Pearson correlation	0.120*	0.123*	0.047	0.095	0.232**	−0.028	0.056	−0.047	0.544**	0.445**	0.362**	0.356**	1	0.565**	0.517**	0.489**
	Sig. (two-tailed)	0.033	0.029	0.404	0.093	0.000	0.620	0.323	0.410	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Cash availability	Pearson correlation	0.064	0.101	0.082	0.096	0.154**	0.028	0.152**	0.155**	0.482**	0.405**	0.388**	0.529**	0.565**	1	0.653**	0.373**
	Sig. (two-tailed)	0.258	0.075	0.146	0.088	0.006	0.625	0.007	0.006	0.000	0.000	0.000	0.000	0.000		0.000	0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Claim (technical) complaint	Pearson correlation	0.164**	0.135*	0.045	0.144*	0.111*	−0.070	0.091	0.042	0.380**	0.301**	0.264**	0.302**	0.517**	0.653**	1	0.532**
	Sig. (two-tailed)	0.004	0.016	0.423	0.010	0.049	0.213	0.107	0.457	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315
Overall customer satisfaction	Pearson correlation	0.176**	0.168**	0.099	0.162**	0.149**	−0.147**	0.099	−0.001	0.417**	0.351**	0.232**	0.149**	0.489**	0.373**	0.532**	1
	Sig. (two-tailed)	0.002	0.003	0.080	0.004	0.008	0.009	0.079	0.991	0.000	0.000	0.000	0.008	0.000	0.000	0.000	
	n	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (two-tailed). Source: Author calculation in SPSS. ATM: Automated teller machine

system and 33.3% use only to check bank account balance. About 61.2% respondents are using ATM up to 5 times in a week.

B. Result of Reliability Statistics

To test the validity of dimensions used in the survey Cronbach's alpha reliability test is used. Cronbach's alpha should be >0.700 (Hendrickson et al., 1993). Table III shows no missing value (validity of data). Table IV shows that all dimensions Cronbach's alpha value are >0.801>standard coefficient alpha value 0.700. Table V shows dimensions individual Cronbach's alpha value, where all found above 0.801. Table VI shows scale statistics where mean is 47.13, variance is 85.888 and the standard deviation found here is 9.268.

C. Descriptive Analysis

Table VII gives information about all dimensions of service quality; means are between 2.79 and 3.46. Users are neutral opinions about all the service quality (standard deviation mean is 1.17). Service qualities to be considered for improvement are the cost of service, sufficient number of ATMs, taking care of technical complaint, and overall satisfaction (<3.00).

Hypothesis:

H_{01}: No significance relationship observed between service quality and overall customer satisfaction about ATM services.

H_{a1}: Significance relationship observed between service quality and overall customer satisfaction about ATM services.

According to Komal and Sultan (2009); Mobarek (2007); Mcandrews (2003); and Dilijonas et al. (2009), service qualities have a significant relation with overall customer satisfaction in ATM service. However, present research does not fully support this. Table VIII indicates overall customer satisfaction is 85.71% correlates with other dimensions and 14.29% does not correlate. Cost of services of ATM, ATM network capacity, security in transaction of ATM, sufficient number of ATMs, screen language of your ATM, maximum withdrawal limit per day, quality of notes (currency), the behavior of ATM personnel guard, instruction clarity to operate ATM, availability of power back up/generator/inverter, cash availability, and technical complaint correlation is significant at 0.01 level (two-tailed); location of ATM centers, processing of transaction, and keypad of ATM machine are not significant with overall customer satisfaction.

Hence,

H_{01} was accepted in case of location of ATM centers, processing of transaction and keypad of ATM machines are not significant with overall customer satisfaction.

D. Result of Factor Statistics

H_{a1} was accepted in case of cost of services of ATM, ATM network capacity, security in transaction of ATM, sufficient number of ATMs, screen language of your ATM, maximum withdrawal limit per day, quality of notes (currency), the behavior of ATM personnel guard, instruction clarity to operate ATM, availability of power back up/generator/inverter, cash availability, and technical complaint.

Factor analysis used to recognize important factors/dimensions of customer satisfaction toward ATM services. It facilitates reduction in data. Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity determine levels of adequacy of factor analysis. KMO measure score is 0.777 which is well above than the recommended level, i.e., 0.50 (Table IX) (Malhotra and Dash, 2007), while Chi-square value indicating as 2054.669 at degree of freedom 120. Bartlett's test of sphericity is significant at $P < 0.001$ level. Eigenvalues >1.0, the data "spread-out" into five factors. The extraction method used with principal component factoring with Varimax rotation (Table X).

Factor analysis: The purpose of this analysis is to measure the relative effect of each independent variable on the dependent variable.

E. Hypothesis

H_{02} (null hypothesis): Customer satisfaction is not dependent on ATM services.

H_{a2} (alternative hypothesis): Customer satisfaction is dependent on ATM services.

Model: In this research, overall customer satisfaction considered as dependent variable and other dimensions of ATM service quality, namely, cost of services of ATM, ATM network capacity, location of ATM Centers, security in transactions of ATM, sufficient number of ATMs, screen language of your ATM, processing of transaction, keypad of ATM machine, maximum withdrawal limit per day, quality of notes (currency), behavior of ATM personnel or guard, instruction clarity to operate ATM, availability of power back up/generator/inverter, cash availability, and claim (technical) complaint as independent variables.

The regression model can be formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + e_i$$

Where,

Y = Overall customer satisfaction
X_1 = Cost of services of ATM
X_2 = ATM network capacity
X_3 = Location of ATM centers
X_4 = Security in transactions of ATM
X_5 = Sufficient number of ATMs
X_6 = Screen language of your ATM
X_7 = Processing of transaction
X_8 = Keypad of ATM machine
X_9 = Maximum withdrawal limit per day
X_{10} = Quality of notes (currency)
X_{11} = The behavior of ATM personnel or guard
X_{12} = Instruction clarity to operate ATM
X_{13} = Availability of power back up/generator/inverter

TABLE IX
KAISER-MEYER-OLKIN AND BARTLETT'S TEST

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.777
Bartlett's test of sphericity	Approx. Chi-square	2054.669
	Df	120
	Sig.	0.000

TABLE X
TOTAL VARIANCE EXPLAINED

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% Of variance	Cumulative %	Total	% Of variance	Cumulative %	Total	% Of variance	Cumulative %
1	4.592	28.697	28.697	4.592	28.697	28.697	2.963	18.516	18.516
2	2.780	17.372	46.069	2.780	17.372	46.069	2.683	16.768	35.284
3	1.560	9.752	55.821	1.560	9.752	55.821	2.027	12.671	47.955
4	1.150	7.187	63.008	1.150	7.187	63.008	1.976	12.349	60.304
5	1.024	6.398	69.406	1.024	6.398	69.406	1.456	9.102	69.406
6	0.865	5.406	74.812						
7	0.650	4.060	78.873						
8	0.553	3.453	82.326						
9	0.518	3.241	85.567						
10	0.484	3.027	88.594						
11	0.411	2.570	91.164						
12	0.357	2.234	93.398						
13	0.309	1.932	95.330						
14	0.280	1.749	97.079						
15	0.251	1.567	98.645						
16	0.217	1.355	100.000						

Extraction method: Principal component analysis. Source: Author calculation in SPSS

TABLE XI
ANOVA[a]

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	205.62	15	13.708	14.429	0.000[b]
	Residual	284.062	299	0.95		
	Total	489.683	314			

[a]Dependent variable: Overall customer satisfaction, [b]Predictors: (Constant), claim (technical) complaint, keypad of ATM machine, security in transactions of ATM, screen language of your ATM, cost of services of ATM, the behavior of ATM personnel or guard, quality of notes (currency), sufficient number of ATMs, processing of transaction, location of ATM centers, availability of power back up/generator/inverter, instruction clarity to operate ATM, ATM network capacity, maximum withdrawal limit per day, cash availability. Source: Author calculation in SPSS

TABLE XII
MODEL SUMMARY[b]

Model	R	R-square	Adjusted R square	Std. Error of the estimate
1	0.648[a]	0.42	0.391	0.975

[a]Predictors: (Constant), claim (technical) complaint, keypad of ATM machine, security in transactions of ATM, screen language of your ATM, cost of services of ATM, the behavior of ATM personnel or guard, quality of notes (currency), sufficient number of ATMs, processing of transaction, location of ATM centers, availability of power back up/generator/inverter, instruction clarity to operate ATM, ATM network capacity, maximum withdrawal limit per day, cash availability. [b]Dependent variable: Overall customer satisfaction. Source: Author calculation in SPSS

X_{14} = Cash availability
X_{15} = Claim (technical) complaint
e_i = Error

The overall regression model and its ANOVA are summarized as follows:

Table XI shows the ANOVA test. The significance level is 0.000 and calculated value of ANOVA test is 14.429 which is greater than the critical value. Therefore, it is proved that the given null hypothesis is rejected and an alternative hypothesis is accepted. It shows there is a significant relationship between ATM services criteria and overall customer satisfaction in Kurdistan Region. Table XII of model summary, it is interpreted that 42% ATM services factors have an impact on overall customer satisfaction.

TABLE XIII
COEFFICIENTS[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.752	0.305		2.466	0.014
	Cost of services of ATM	−0.036	0.056	−0.038	−0.648	0.517
	ATM network capacity	0.131	0.073	0.119	1.785	0.075
	Location of ATM centers	0.073	0.063	0.068	1.151	0.251
	Security in transactions of ATM	0.033	0.055	0.033	0.587	0.558
	Sufficient number of ATMs	0.036	0.063	0.035	0.576	0.565
	Screen language of your ATM	−0.199	0.061	−0.169	−3.289	0.001
	Processing of transaction	0.080	0.062	0.073	1.293	0.197
	Keypad of ATM machine	−0.110	0.064	−0.107	−1.738	0.083
	Maximum withdrawal limit per day	0.098	0.077	0.090	1.285	0.200
	Quality of notes (currency)	0.144	0.070	0.135	2.039	0.042
	The behavior of ATM personnel or guard	0.065	0.071	0.058	0.917	0.360
	Instruction clarity to operate ATM	−0.124	0.071	−0.114	−1.756	0.080
	Availability of power back up/generator/inverter	0.216	0.068	0.200	3.180	0.002
	Cash availability	−0.068	0.080	−0.060	−0.848	0.397
	Claim (technical) complaint	0.408	0.067	0.377	6.077	0.000

[a]Dependent variable: Overall customer satisfaction. Source: Author calculation in SPSS

Interpretation of R
- In table, the value of R is = 0.648
- Hence, there is a high volume of positive correlation among the independent variables and dependent variables.

TABLE XIV
OVERALL CUSTOMER SATISFACTION

Valid	Frequency	Percent	Valid percent	Cumulative percent
Highly dissatisfied	40	12.7	12.7	12.7
Dissatisfied	96	30.5	30.5	43.2
Neutral or cannot say	47	14.9	14.9	58.1
Satisfied	98	31.1	31.1	89.2
Highly satisfied	34	10.8	10.8	100.0
Total	315	100.0	100.0	

Source: Author calculation in SPSS

Model fit
- In table value of $R^2 = 0.420$ or 42%
- As per regression model up to 42% variation observed in dependent variable.

Adjusted R^2
- Adjusted $R^2 = 0.391$ or 39%.

F. The Regression Equation

The customer satisfaction (Y) = $0.752+(-0.036)(X_1)$ $+0.131(X_2)+0.73(X_3)+0.33(X_4)+0.036(X_5)+(-0.199)$ $(X_6)+0.80(X_7)+(-0.110)(X_8)+0.098(X_9)+0.144(X_{10})+0.0$ $65(X_{11})+(-0.124)(X_{12})+0.216(X_{13})+(-0.068)(X_{14})+0.408$ (X_{15}).

Interpretation on significance: Table XIII shows that ATM network capacity, location of ATM centers, security in transaction of ATM, sufficient number of ATMs, processing of transaction, maximum withdrawal per day limit, quality of notes (currency), behavior of ATM guard, availability of power back up/generator/inverter, and technical complaint have positive impact in the mindset of customers. In oral communication, users expressed about it. Cost of services of ATM, ATM screen language, keypad of ATM machine, instruction clarity to operate ATM, and cash availability also has second priority impact in the mindset of users.

Interpretation: Table XIV reflects overall customer satisfaction. If we do a comparison of satisfaction and dissatisfaction, it is found that the percentages of dissatisfaction are more than satisfaction, i.e., 43.5%>41.9%. About 14.9% they have a neutral opinion about the ATM services.

VIII. CONCLUSION

As the statistical report of Kurdistan says, it has drastically increased the population of region, due to potential in the market many foreign banks opened their branches in the region. ATM provides faster and easier services at a convenient place of users. To keep away customers from bank to get provided facilities at ATM, banks need to provide them qualitative services at ATM centers because customers have some expectations from ATM services. In the above study, it is observed users are feeling insecure in cash withdrawal whether their account and transaction may hi-jack by hackers and they may lose their money from the bank account. Apart from users are lacking some services at ATM centers such as slow ATM network, location of ATM centers, no sufficient number of ATMs, long processing time in transaction, limited withdrawal limit per day, quality of notes (currency), behavior of ATM guard, non-availability of sufficient power back up/generator/inverter, and no quick consideration of technical complaint.

IX. RECOMMENDATIONS

After discussing with users of ATM and bank official users need the following improvement in ATM service quality. (a) ATM network: Banks should ensure network connection for which they can keep ATM centers upgraded with new internet speed spectrum; (b) location of ATM centers: Bank should do general public survey at least once in a year and can find place where ATM are necessary and can install ATM center after seeing feasibility report; (c) security in transaction of ATM: For security and to gain confidence of users, banks can use SteganoPIN (Priyanka, 2017), verification of finger print using real-time constraint notation (Vivek and Agarwal, 2011), radio frequency identification and mobile fusion for authentication ATM transaction (Srivatsa et al., 2010), secured ATM transaction using Raspberry PI Processor, (Taha, 2018) etc., (d) sufficient number of ATM: To increase the number of ATMs, bank must do general public survey to find out most populated area, populated markets, near to headquarters, offices, educational institutes, etc., with the help of local government body where people can get faster and easier ATM service; (e) long processing time: Bank can use cardless ATM practices (Cardless ATM service, 2019), Fingereye: Iris-scan authentication (Oludare et al., 2019), error monitor system (f) limited withdrawal limit per day: Bank must create awareness among their users through marketing about importance of cashless transaction in various fields (g) quality of notes (currency): With the help of cashless transaction this problem can get solve, bank can decide the expiry year of printed notes. Expired notes can be exchanged with new notes. (h) Behavior of ATM guard: Organize soft skill development program such as communication workshop, create awareness about ATM facilities, tackling the ATM technical and nontechnical problems, and counseling etc. will help in improvement in behavior of ATM guard. (i) Non-availability sufficient power back up: Use of solar panel for power generation can reduce this problem (j) cost of ATM services: TAM, to understand location priorities AHP model, predictive encashment strategy which can reduce total expenses on ATM network management by 18%, queuing modeling approach on ATM service optimization, namely, three queuing model (a single-queue and single-server model, single-queue and multi-server model, and multiple queue and multi-server mode) can reduce cost of ATM services, optimal replenishment policy, CBA can help to reduce cost of ATM services. Skimming Scam Prevention Strategies may be use like video surveillance, cover ATM keypad, check if any camera, should not take help from anybody who are hanging around the ATM machine.

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