Asian Journal of Empirical Research
Volume 9, Issue 7 (2019): 166-174

http://www.aessweb.com/journals/5004

The effect of customer characteristics on service quality in pharmacy retailing: an empirical study in the UAE

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ARTICLE HISTORY:

Received: 06-May-2019
Accepted: 29-Jul-2019
Online available: 15-Aug-2019

Keywords:

Service quality,
Pharmacy retailing,
Customer loyalty,
Customer dependence,
UAE

ABSTRACT

The main purpose of this study was to investigate the effect of customer characteristics, especially demographic and behavioral aspects, on service quality. We investigated the effect of demographic characteristics such as gender, age, education, income, and frequency of visits. We examined the effect of behavioral characteristics such as customer loyalty and dependency. A questionnaire was developed to measure customers' perceived service quality by reviewing current literature in this area. This study measures pharmacy service quality from the reflective model perspective. Service quality is measured on reliability, assurance, tangibility, empathy, and responsiveness. A survey was conducted among customers who visited pharmacy retail stores in Al Ain, UAE.

Contribution/ Originality
This study measures pharmacy service quality from the reflective model perspective. Customer loyalty was found to have a significantly positive effect and customer dependence was found to have a significantly negative effect on the perceptions of service quality in pharmacy retail stores.

DOI: 10.18488/journal.1007/2019.9.7/1007.7.166.174
ISSN (P): 2306-983X, ISSN (E): 2224-4425

How to cite: K. Abdul Waheed and Ayisha Siddiqua (2019). The effect of customer characteristics on service quality in pharmacy retailing: an empirical study in the UAE. Asian Journal of Empirical Research, 9(7), 166-174.

1. INTRODUCTION

The healthcare system has several interdependent players, each performing their role in providing healthcare to patients. Even though the starting touchpoint in this system is always the physicians, the role of the final touchpoint lies with the pharmacists who work in pharmacy retail stores. For better development of the healthcare system the services provided at pharmacy retail stores should be continuously improved. The assessment of the quality of services provided at pharmacy retail stores is much needed to improve the delivered level of service. Improvement of service quality is not only important to pharmacy retail stores, but also to the whole society as this would enhance the general healthcare system and delivery of healthcare. Several studies have established the significant effect of service quality on patient satisfaction. This assessment of service quality can happen from several stakeholders' points of view. White and Klinner (2011) assessed service quality from pharmacists' point of view. Several studies explored service quality assessment of pharmacy retail stores from customers' point of view. Hasan *et al.* (2013) studied patients' satisfaction in the UAE, but there is no research that studied service quality of pharmacy retail stores in the UAE. The purpose of this study is to measure customers' perception of service quality in the UAE and to relate to various customer characteristics.

Pharmacy literature lacks distinction between measurement of satisfaction and service quality of pharmacy. To measure satisfaction with pharmacy retail stores researchers listed all the attributes of the pharmacy and asked respondents to indicate their level of satisfaction with them. However, research suggests that service quality perceptions are independent of satisfaction perceptions and therefore should not be used interchangeably. Most researchers of service quality of pharmacy used formative measurement of service quality. However, the traditional measure of SERVQUAL included reflective measurement for the first order and formative measurement for the second order.

The purpose of this study is to investigate the quality of service in pharmacy retail stores in the UAE and specifically to investigate the effect of customers' demographic and behavioral characteristics on service quality perception. We investigated the effect of demographic characteristics such as gender, age, education, and income. We examined the effect of behavioral characteristics such as frequency of visits, loyalty, and dependency. We propose two hypotheses on behavioral characteristics:

H_1: Customer loyalty is expected to be positively associated with customers' perception of service quality.

H_2: Customer dependence is expected to be negatively associated with perceptions of service quality.

The remainder of the article includes a review of literature on the quality of service in pharmacy retail stores, description of data collection, analysis, findings, discussion, and implications of the findings.

The literature on social and administrative pharmacy contains several studies that have mixed customer satisfaction with service quality and vice versa. Hasan *et al.* (2013) measured customer satisfaction in pharmacy retail stores in the UAE with a tool specifically developed for the Arabic context. Their instrument included four service attributes: information provision, relationship maintenance, accessibility, and availability. These attributes can easily be explained by the dimensions of SERVQUAL. Although they claimed that they measured customer satisfaction, these measurement items are directly related to measurement of service quality. This raises the question whether they measured service quality or customer satisfaction.

White and Klinner (2011) conducted a qualitative study on service quality in pharmacy retail stores from pharmacy staff's point of view and explored its determinants. Their study included pharmacy staff's perceptions of consumer expectations, which were used to identify service quality specifications and actual service delivery. Basically their study explored how the gaps model of service quality (Parasuraman *et al.*, 1985) can be applied in the pharmacy retail store setting.

Friesner and Scott (2009) identified the determinants of customer satisfaction with rural community telepharmacies in the USA. Their study included patient satisfaction measure that included 20 items which are similar to Larson and MacKeigan (1994) measure. Similarly, Patterson *et al.* (2013) measured patient satisfaction using Larson and MacKeigan scale that includes 20 items related to pharmacy staff. Tinelli *et al.* (2011) developed a new scale to measure patient satisfaction with pharmacy retail stores. This scale included 15 items essentially covering patient satisfaction with various attributes of services of community pharmacists. This measure basically included SERVQUAL items of Parasuraman *et al.* (1988).

Nau (2009) proposed an approach for measuring pharmacy service quality using secondary data available in the pharmacy itself based on the available measure of the quality of healthcare. This proposed measurement included primary and secondary data. The secondary data included medical or prescription records, administrative claims, and operations records. The primary data are patient reported data on satisfaction. This measurement approach of pharmacy quality essentially meant that the patient satisfaction construct is part of quality.

Urbonas *et al.* (2010) examined pharmacy specialists' attitude to service quality of pharmacy retail stores in Lithuania. Their analysis extracted two dimensions: pharmacotherapeutic aspects and socioeconomic aspects. Pharmtherapeutics covered how well the pharmacy retail stores helped customers in providing therapeutic information, side effects of drugs, and offers. They covered how much time the pharmacist spent with a customer and how confident the pharmacist was about the customer's knowledge of drug therapy. Socioeconomic aspects included items such as how well the pharmacist was able to reassure the customer about the medication and how well the pharmacist was able to understand the customer's affordability. They found that the socioeconomic dimension of service quality of pharmacy stores fared better than pharmacotherapeutics.

Holdford and Schulz (1999) studied customer perceptions of pharmaceutical service quality and evaluated the relative importance of functional and technical quality in influencing the quality of pharmaceutical service. They defined functional quality as, "consumers' perceptions of delivered services" and technical quality as "consumers' perceptions of what was received from those services" (p.1345).

Perepelkin and Zhang (2014) examined the effect of customer perceived service quality of pharmacy retail stores on customer trust. They measured service quality using the SERVQUAL measure developed by Parasuraman *et al.* (1988). Hedvall and Paltschik (1991) studied the measurement of service quality of pharmacy retail stores, compared it to Parasuraman *et al.'s* (1988) measurement, and found a mostly similar structure.

Parasuraman *et al.* (1988) clearly established that service quality perceptions are different from satisfaction perceptions and confirmed that service quality acts as an antecedent to satisfaction. Therefore this study uses Parasuraman *et al.'s* (1988) measure of the perception of service quality performance.

2. METHODS

2.1. Measures

The measures of service quality, customer dependence, and customer loyalty were drawn from research in marketing and pharmacy retail. The items were modified to suit the UAE context. This study is methodologically different with respect to empirically investigating the effect of customer characteristics on service quality, which has not been addressed in the past.

Service quality ; Parasuraman *et al.* (1988) measured service quality perceptions (SERVQUAL) on reliability (5 items), assurance (4 items), tangibles (4 items), empathy (5 items), and responsiveness (4 items). Their measurement of service quality included both expectations and perceptions of

performance. To measure service quality, Cronin and Taylor (1992) and Cronin and Taylor (1994) suggested that only perceptions of service quality performance (SERVPERF) are sufficient. In this study we have used the SERVPERF scale to measure the service quality perceptions of pharmacy retail stores.

Dependence; Crutchfield and Morgan (2010) measured customer dependence with a 7-item scale in the context of the patient-physician relationship. We have used this scale to measure customers' dependence on pharmacy retail stores.

Loyalty; Customer loyalty to pharmacy retail stores was measured using the scale developed by Reynolds and Beatty (1999).

2.2. Data collection

The data for this research were collected from Al Ain - one of the popular cities in the UAE. This city is part of the Abu Dhabi emirate. Al Ain was selected because the considerable (42.9%) of local population live there and it has two well-known government hospitals: The Tawam Hospital and the Al Ain Hospital. This city also has a number of fully-fledged private hospitals and a strong network of pharmacy retail stores. The survey was carried out through questionnaires in both English and Arabic. To refine the clarity of the language and sequencing of the questions we performed a test with a face-to-face interview with 30 customers (15 for English and 15 for Arabic). We verified the responses of this test for reliability and validity testing and found it to be acceptable.

The refined questionnaire was used for the main study. A total sample of 500 was planned for the main study to enable all the statistical tests required for the study. Customers who visited 16 pharmacy retail stores in Al Ain were intercepted and asked to participate in the study. Out of 552 respondents 52 quit participation in the middle, thus we gathered 500 responses for further analysis. To test any differences between responses of the English and Arabic versions we performed an ANOVA on all items of the questionnaire. The results suggested that there were no significant differences between the two groups and therefore we treated all 500 responses as one sample.

3. FINDINGS

3.1. Demographic analysis of respondents

The mean age of respondents was around 30 years and 53.6% of respondents were female. 80.4% of respondents were university educated and 58.2% of them were employed. 45.4% of the respondents were in the monthly income category of 10,001-20,000 UAE Dirhams (US$2,725-5,449). As health insurance is a mandatory requirement for holding a resident visa in the Abu Dhabi emirate, all respondents had health insurance. 10.8% of respondents were UAE nationals, 26.8% of them were from Arab countries, and 14.8% were from South Asian countries.

3.2. Measurement model (validity and reliability testing)

The collected data were analyzed to test the measurement properties of the latent constructs used in the study such as service quality, customer loyalty, and customer dependence and to investigate the proposed hypotheses related to these latent constructs. This analysis was carried out with partial least squares structural equations modeling (PLS-SEM) (Ringle *et al.*, 2005). This analytical method was chosen primarily because the study is exploratory in nature (Hair *et al.*, 2012). We used ANOVA to study the association between demographic characteristics and service quality perceptions.

The measurement model analysis in PLS-SEM checks the validity and reliability of multi-item constructs that are measured in the study. Table 2 shows all the measures of all the constructs employed in the study. It provides details of (outer) loadings of the items with their respective factor (construct) and loadings of the items with other factors (cross). This analysis provides evidence for the convergent validity of the constructs. All the items of all the constructs loaded with their respective constructs with loading more than the cut-off point of 0.50 except one item of reliability dimension, one item of

responsiveness dimension of a service quality construct, and two items of customer dependence. These items were not included in subsequent analysis related to hypotheses testing.

Table 1: Measurement items and factor loadings

Factors/Items	REL	RES	ASSU	EMP	TAN	LOY	DEP
Service quality							
Reliability (REL)							
This pharmacy provides the services as expected	**0.72**	0.39	0.4	0.32	0.36	0.1	-0.05
This pharmacy is trust worthy in managing customer service issues	**0.76**	0.37	0.38	0.31	0.37	0.11	-0.08
This pharmacy's service delivery is right on time as per its promises	**0.76**	0.43	0.35	0.35	0.31	0.17	-0.04
This pharmacy doesn't make any error in records of purchase	**0.65**	0.43	0.32	0.35	0.29	0.15	-0.03
Responsiveness (RES)							
This pharmacy inform customers exact time when the service will be delivered	0.56	**0.8**	0.52	0.41	0.42	0.14	-0.1
This pharmacy provide prompt service to customers	0.48	**0.9**	0.56	0.48	0.5	0.16	-0.1
Employees of this pharmacy are always keen to help	0.4	**0.8**	0.56	0.44	0.37	0.14	-0.06
Assurance (ASSU)							
Employees of this pharmacy provide confidence	0.4	0.48	**0.76**	0.44	0.38	0.14	-0.01
Employees of this pharmacy make customers feel comfortable in their purchases	0.39	0.52	**0.87**	0.5	0.41	0.13	0
Employees of this pharmacy are always polite	0.45	0.6	**0.9**	0.59	0.53	0.15	-0.06
Employees of this pharmacy have adequate knowledge to respond to any queries	0.47	0.55	**0.85**	0.61	0.55	0.11	-0.09
Empathy (EMP)							
This pharmacy provides individualized attention to the customers	0.4	0.48	0.6	**0.82**	0.51	0.14	-0.12
This pharmacy's employees care for their customers	0.43	0.46	0.57	**0.87**	0.47	0.14	-0.13
This pharmacy shows concern for what's good for its customers	0.36	0.36	0.46	**0.84**	0.42	0.15	-0.08
Employees of this pharmacy identify customer needs very well	0.34	0.39	0.49	**0.8**	0.52	0.15	-0.09
This pharmacy's working hours are convenient to the customers	0.34	0.4	0.46	**0.71**	0.62	0.14	-0.19
Tangibility (TAN)							
This pharmacy has all necessary latest equipment	0.36	0.41	0.48	0.57	**0.8**	0.15	-0.19
This pharmacy has aesthetically impressive physical facilities	0.42	0.44	0.45	0.53	**0.9**	0.11	-0.17
This pharmacy's employees are well dressed and has professional appearance	0.4	0.46	0.53	0.56	**0.9**	0.13	-0.14
The physical facilities of this pharmacy are appropriate for the service that it provides	0.39	0.41	0.44	0.48	**0.8**	0.09	-0.08
Loyalty (LOY)							
I always buy medicine from this pharmacy	0.16	0.16	0.13	0.13	0.11	**0.95**	0.22
I am highly committed to this pharmacy	0.18	0.17	0.16	0.2	0.16	**0.97**	0.21
Dependence (DEP)							
Switching to another pharmacy would need more time and effort	-0.04	-0.1	-0.02	-0.06	-0	0.19	**0.72**
I will be required to put more time than I can afford to switch to another pharmacy	-0.04	-0	0.01	-0.08	-0.1	0.23	**0.85**

Switching to another pharmacy would be very frustrating	-0.07	-0.1	-0.05	-0.14	-0.2	0.2	**0.96**
Switching to another pharmacy would be a great big hassle	-0.05	-0.1	-0.05	-0.18	-0.2	0.2	**0.93**
Other pharmacies would fit my needs as well as this pharmacy (R)	-0.15	-0.2	-0.14	-0.18	-0.1	0	**0.5**

The convergent validity of the measures is also established by assessing the average variance extracted (AVE) of the respective construct which is supposed to exceed the cut-off point of 0.50 for a satisfactory convergent validity. Table 3 provides the details of convergent and discriminant validity and reliability of the measures. All the first order factors and the only second order factor, namely, service quality were found to have AVE more than 0.50 establishing satisfactory convergent validity. The discriminant validity is assessed by square root of AVEs and the inter construct correlations. For an acceptable level of discriminant validity, the inter construct correlations should be less than its square root of AVE. The square root of AVE of all the first order constructs are presented on the diagonal in bold letters in table 3 and the inter-construct correlations were found to be less than the square root of AVE which confirms discriminant validity of all the measures. The reliability of the measures of the constructs is assessed by composite reliability shown in table 3 which is supposed to be more than 0.70 for a satisfactory reliability. All the measures of all first order constructs were found to be more than 0.70 that confirms satisfactory reliability. All the dimensions of the service quality construct were found to have significant (p value < 0.01 level) factor loading.

Table 2: Construct reliability, convergent and discriminant validity

Constructs	Second order factor loadings	Composite Reliability	AVE	Inter-construct correlations**						
				LOY	DEP	REL	RES	ASSU	EMP	TAN
Service Quality		0.94								
Loyalty (LOY)		0.96	0.92	**0.96**						
Dependence (DEP)		0.9	0.51	0.2	**0.72**					
Reliability (REL)	0.70*	0.81	0.52	0.18	-0.13	**0.72**				
Responsiveness (RES)	0.78*	0.89	0.73	0.17	-0.16	0.56	**0.86**			
Assurance (ASSU)	0.85*	0.91	0.72	0.16	-0.11	0.51	0.64	**0.85**		
Empathy (EMP)	0.85*	0.91	0.66	0.18	-0.22	0.46	0.52	0.64	**0.81**	
Tangibility (TAN)	0.81*	0.92	0.73	0.14	-0.21	0.46	0.51	0.56	0.63	**0.86**

* p value < 0.01 level; ** The figures in diagonal and are bold font are square root of the AVE

3.3. Structural model (Behavioral characteristics)

The PLS-SEM draws results for the structural model that allows testing of the effects of behavioral characteristics such as loyalty and dependence on service quality. Results of the results of the structural model are shown in table 4. This model is assessed on three aspects such as explanatory power, predictive power and predictive relevance (Hair *et al.*, 2012). The model is assessed for explanatory power through R^2. The model resulted in satisfactory explanatory power (R^2 = 0.108) as in 10.8% variance in the service quality construct is explained by the behavioral characteristics. The significance of the path coefficients shows the predictive power of the independent variables included in the study. The path coefficients of both independent variables, loyalty and dependence were found to have a significant effect (Path coefficient of Loyalty = 0.258; t value = 4.919; Path coefficient of Dependence = -0.262; t value = 6.583) on the dependent variable, service quality at < 0.01 level. The Q^2 value of

the model indicates the predictive relevance of the model which is supposed to exceed zero as the results of analysis show that (Q^2 value = 0.046) it exceeded zero confirms predictive relevance of the model.

Table 3: Summary of results of structural model

Path	Hypotheses	Path coefficients	t-value	R^2	Q^2	Hypotheses supported?
Loyalty------> Service quality	H_1	0.258	4.919*	0.108	0.046	Yes
Dependence------> Service quality	H_2	-0.262	6.583*			Yes

* p < 0.01 level

3.4. Effect of demographic characteristics

To examine the effect of demographic characteristics on different dimensions of service quality perceptions, we performed One-Way Analysis of Variance (ANOVA). We have included the demographic characteristics such as gender, age, education, income and frequency of visit as independent variables and service quality perceptions as the dependent variable. The results of this analysis are shown in table 5 and the results suggest that the gender of the customer did not have any significant effect on any dimension of service quality perceptions. The age of the customer was found to have significant effect on reliability, assurance, empathy and tangibility dimensions of service quality perceptions at p value < 0.01 level. The responsiveness dimension was found to be significant at p value < 0.05 level. The education of the customer was found to have significant effect on assurance and empathy dimensions at p value < 0.01 level and on responsiveness at p value < 0.05 level. The income of the customer was found to have significant effect on empathy dimension at p value < 0.05 level. The frequency of visit of the customer the pharmacy retail stores was found to have significant effect on tangibility at p value < 0.01 level and on empathy at p value < 0.05 level.

Table 4: Results of one-way ANOVA

Dependent Variable	Independent Variable				
	Gender F value	Age F value	Education F value	Income F value	Frequency of Visit F value
Service Quality Dimensions					
Reliability	0.08	2.84*	1.58	0.86	2.43
Responsiveness	0.45	2.43**	3.23**	1.18	0.16
Assurance	1.30	3.88*	4.39*	1.09	1.62
Empathy	0.10	2.88*	4.24*	2.08**	3.99**
Tangibility	0.96	4.63*	1.65	1.42	8.80*

* p < 0.01 level; ** p < 0.05 level

4. DISCUSSION

The purpose of this study was to investigate the effect of customers' behavioral and demographic characteristics on the perceptions of service quality of pharmacy retail stores. With regards to behavioral characteristics we proposed two hypotheses: the positive effect of customer loyalty and the negative effect of customer dependence on their service quality perceptions of pharmacy retail stores. The findings of the study suggested that customer loyalty had a significantly positive effect on customers' perception of service quality in pharmacy retail stores. This finding means that customers who loyally visit pharmacy retail stores have positive perceptions of the service quality in the stores. This finding implies that pharmacy retail stores should encourage customer loyalty. They may consider implementing customer relationship management (CRM) programs and offer reward points for each purchase. The reward points could be used for purchases of over the counter (OTC) products.

Similarly, pharmacy retail stores could partner with credit card service providers which would create another way to motivate customer loyalty to pharmacy retail stores. They could devise area specific promotions to encourage customer traffic to the stores.

Our study also found that customer dependence has a negative effect on their perceptions of service quality. This finding means that if customers buy from a particular pharmacy retail store due to no other alternative, they feel forced to buy from that store and therefore tend to have negative perceptions of the service quality in pharmacy retail stores. This finding implies that pharmacy retail stores should remove customers' feeling that they buy from that pharmacy just because they are dependent.

We have included variables of demographic characteristics such as gender, age, education, income, and frequency of visits to pharmacy retail stores. Our analysis found that gender had no effect on any dimension of service quality perceptions. This finding implies that pharmacy retail stores need not design initiatives on the basis of customers' gender. Customers' age had a significant effect on service quality perceptions across all dimensions. This finding suggests that pharmacy retail stores could use age as one important factor for designing initiatives including new services. Customers' education was found to have a significant impact on responsiveness, assurance, and empathy. This may be because education helped customers understand and empathize with the difficulties and challenges involved in the role of pharmacists. Customers' income was found to have an effect only on empathy. This may be because customers might expect pharmacists to react differently and show empathy on the basis of customers' level of income. The frequency of visits was found to impact empathy and tangibility. This finding suggests that customers' perceptions of empathy and tangibility of pharmacy retail stores would be different according to their frequency of visits. It may be because customers regularly visit a particular pharmacy because the pharmacists treat them empathetically and customers appreciate the tangible aspect of pharmacy retail stores. This finding implies that marketers should focus more on empathy as it seems to be more critical compared to the rest of the other dimensions of service quality.

5. CONCLUSIONS

This study argued that customer satisfaction perceptions are different from service quality perceptions and established that research in this area has been using this construct interchangeably. We used the SERVPERF scale to measure customers' perceptions of the quality of service in pharmacy retail stores in the UAE. We investigated the effect of behavioral and demographic characteristics on the perceptions of service quality. We found a significant association between behavioral characteristics and service quality perceptions. We found demographic characteristics such as age, education, income, and frequency of visits to have a significant effect on specific dimensions of service quality perceptions. We discussed how the findings of the study can be implemented in pharmacy retail stores.

Funding: This study received no specific financial support.
Competing Interests: The authors declared that they have no conflict of interests.
Contributors/Acknowledgement: All authors participated equally in designing and estimation of current research.

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