Iranian Journal of Pharmaceutical Research (2016), 15 (4): 973-982
Received: Dec 2014
Accepted: Oct 2015

Original Article

Distributor– Retailer Interface in Pharmaceutical Supply Chain: Service Quality Measurement Scale

Gholamhossein Mehralian [a*], Jafar Babapour [a] and farzad peiravian [a]

[a]*Department of Pharmacoeconomics and Pharma Management, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

Abstract

In the current competitive market, service quality management is the key to the survival and success of businesses. SERVQUAL is a popular service quality measurement scale (SQMS) that has served as a basis for subsequent research on service quality; it has been used for testing different aspects of service quality in a market. The purpose of our study is, therefore, to develop a service quality measurement scale (SQMS) for the distributor–retailer interface of Pharm supply chains (PSC) in Iran. A survey was performed to collect data from pharmacies located in Tehran. A valid and reliable questionnaire delivered to pharmacies, and 400 pharmacies were intended to participate in our survey. Confirmatory factor analysis (CFA) was used to develop an SQMS in this study. Sufficient sampling was undertaken to do CFA. Consistent with other service quality studies, this Res developed an SQMS with five dimensions and 20 items for PSC, and contributes to mangers to regularly measure service quality. This is an initial study to develop a framework for measuring service quality in Iranian PCS. The framework can be used effectively to achieve competitive advantage at the distributor–retailer interface.

Keywords: Pharm supply chain, Service quality, Pharm, Iranian.

Introduction

In the current competitive market, service quality management is important for the survival and success of businesses, and Mark studies demonstrate that high service quality is a critical factor in the competitive business world (1). It is needless to say that Companies do their best to improve their service quality and satisfy customers by delivering their products in an accurate and prompt manner (2). The concept and definition of service quality have been proposed by Parasuraman *et al.* (3, 4). The authors define service quality as the perceptual gap between expectations and evaluation of service experiences.

* Corresponding author:
E-mail: gmehralian@gmail.com

Generally, researchers are in favor of one of the two conceptualizations. The first model that has clarified the dimensions of service quality as functional and technical quality is the "Nordic perspective". The second one uses terms that explain service encounter characteristics; this is called the "American perspective." Although the American perspective dominates the literature, the consensus about the relative value of these two approaches has not been reached (5).

There are many studies trying to measure the service quality; however, it is not clear what values should be measured (6). The main problem is the intangibility of services, which makes it difficult to identify, measure, and manage the crucial service aspects. There are a variety of definitions of service quality in the literature. On the basis of these definitions, several different measurement scales have been developed.

Among these, SERVQUAL and SERVPERF are the two most popular measurement scales for service quality (7).

Since improvements in service quality can increase the overall success rate of the healthcare provision, they have become an important topic to healthcare providers and marketers and the focus of many studies. Service quality can also substantially affect patient satisfaction (8). Inevitably, the increased satisfaction improves customer loyalty and purchase intention (9, 10). Accurate measurement of the quality of healthcare services and identification of the nature of service delivery system are equally important for the success of healthcare providers (11). Many researchers and practitioners are interested in studying service quality because it directly affects business performance, customer loyalty, profitability, and customer satisfaction (12, 13).

Most of the Res on service quality has been focused on the end user (14). The interactions between different parts of the PSC (as an integral part of healthcare services) have been rarely studied. These interactions are important; the services received by patients are strongly affected by the service quality of these supply chains, including the distributor–retailer interface. Here we developed a service quality scale for the distributor–retailer interface of PSC in Iran. Our results should at least partly ameliorate the lack of data on the service quality in supply chains. The paper also discusses developing an SQMS in an important but neglected sector of distributor–retailer interface of PSC. SQMS described here will help the managers of Iranianian Pharm distribution companies to measure, manage, and improve the service quality. The rest of paper are organized accordingly; in Section 2 a literature review is presented, followed by the methodology in Section 3. In Section 4, the study results are organized and in Sections 5 and 6, the discussion and conclusion of study are provided.

Literature review

Service quality definition

The measure of quality is the ability of a product or service to fulfill the requirements or perform the task for which it is designed. Unlike a product, a service is judged not only by the outcome (technical quality), the process of delivering a service is also assessed to evaluate its quality (functional quality) (15, 16). Different definitions have been offered for service quality and various measurement scales have been developed accordingly (7). Service quality can be defined as the difference between customer expectations and the perceived service performance. When the performance is lower than the expectations, the quality offered is not sufficient and consequently the customers become dissatisfied (17).

According to Boulding *et al.* expectations are "pre-trial beliefs about a product or service" (18). In other words, service quality is a universal attitude or judgment about the level of the service. The early studies for measuring service quality are based on the Res in the goods sector. Parasuraman *et al.* examined this area in the mid-1980s (3). They have been among the first researchers to conclude that the nature of quality in the service sector is different from that in product sector. Brady and Cronin, and McAlexander *et al.* have applied the term "technical care" in evaluation of the outcome of healthcare services and concluded that it is a prominent factor in patient perception of service quality (5, 10). From another perspective, de Ruyter and Wetzels have also reported that the service quality and service outcome are directly related (19). To summarize, identifying, and measuring the service quality is difficult as the concept may be discussed from different points of view (20).

The measurement of service quality

Edvardsen *et al.* state that analysis and measurement are the basis for developing service quality (21). To make a system operate effectively, we need an instrument for identifying and measuring its quality. The specific characteristics of services mainly their intangibility, inseparability, perishability, and incongruity make the measurements difficult (22). Based on definition proposed by Parasuraman *et al.* service quality is defined as the difference between the expectations of customers ("what they want") and their perceptions ("what they receive") (3, 4). Accordingly, they have proposed a SERVQUAL scale for the service quality

measurement. The SERVQUAL scale has been a turning point in the history of service quality assessments; it is now widely applied.

Service quality models

The perceptions of service quality are based on a variety of dimensions. However, there is no general agreement on nature or number of dimensions. Two, three, five, and even ten dimensions have been proposed. The assessment of service quality is a highly complicated process that may involve several levels of abstraction (5). Several models of service quality have been proposed (23).

In this section, the top five of

Service Quality Measurement models are described.

- The Nordic Model
  Nordic model is based on disconfirmation paradigm, which compares the perceived performance with expected service (24). Grönroos has proposed that consumer perception of service quality is a function of a gap between their expectations and perception of the quality of the delivered service (16). This conceptualization of service quality has provided the framework for the SERVQUAL scale developed by Parasuraman *et al.* (4).
- The SERVQUAL Model
  Parasuraman *et al.* have developed a new model of service quality measurement based on disconfirmation paradigm (3). They have tried to overcome the weaknesses of the Nordic model by offering a new way to measure the service quality. In their SERVQUAL model, the gap or difference between expected and delivered service is used to measure the service quality. The model uses five dimensions: reliability, responsiveness, assurance, empathy, and tangibility. They have declared that the five dimensions and 22 factors proposed in their American perspective are non-exclusive in nature and applicable to all service firms (4).
- The Three-component Model
  Rust and Oliver offer a three-component model: the service product (i.e., technical quality), the service delivery (i.e., functional quality), and the service environment are considered (25).
- The Multilevel Model
  To compensate for the inconsistencies reported for SERVQUAL factors, Dabholkar *et al.* have proposed a multilevel model of service quality (26). They have changed the model structure to a three-stage model, including overall perceptions of service quality, primary dimensions, and sub-dimensions. This model has been defined for the evaluation of service quality in retail stores. Although this multilevel model offers a useful new structure, it needs to be generalized. They have proposed five dimensions central to the service quality: physical aspects, reliability, personal interaction, problem-solving, and policy.
- The Hierarchical Model
  In 2001, Brady and Cronin constructed a new model by combining other models; they improved SERVQUAL by defining what items needed to be reliable, responsive, empathic, assured, and tangible. They assumed that the perception of service quality would be based on customer evaluations in three dimensions: interaction quality (i.e., functional quality), physical environment quality, and outcome quality (i.e., technical quality) (5).

  During recent decades, the Researchers have attempted to develop a perfect model for measuring service quality, covering all the factors and coping with the problems in this area. The present study also addresses some of the important issues in the field. To achieve this goal, we selected the SERVQUAL model as the theoretical framework.

SERVQUAL model

The SERVQUAL scale has served as a basis for Res on service quality; it has been used for testing different issues related to service quality in the market. Parasuraman *et al.* have developed a 34-item service quality scale consisting of ten dimensions (reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowledge of the customer, and tangibles) (3). Their later work has delivered an SQMS with 22-items and five dimensions (4):

(1) Tangibility. Physical facilities, equipment, and appearance of the personnel.

(2) Reliability. Ability to perform the promised service dependably and accurately.

(3) Responsiveness. Willingness to help customers and provide prompt service.

(4) Assurance. Knowledge and courtesy of the employees and their ability to inspire trust and confidence.

(5) Empathy. Caring, individualized attention provided by the company.

The accuracy of conceptualizing the SERVQUAL scale as consisting of the five distinct components identified by Parasuraman *et al*. has been questioned (4). However, the validity of the 22 individual performance scale items that make up the SERVQUAL scale appears to be well supported both by the procedures used to develop the items and by their subsequent use. Furthermore, some studies have found that the numbers of service quality dimensions are not stable across different services, using factor analysis (27, 28, 11). There seems to be a consensus that SERVQUAL is not a generic solution for all service industries, and other service-specific dimensions have been suggested (29). The construct validity of SERVQUAL needs to be tested on industry-by-industry basis before it can be used to test the customer perception of service quality.

Retail service quality scale

Finn and Lamb state that in the retail industry, the SERVQUAL scales are not suitable for measuring the five constructs identified by Parasuraman *et al.* They have tested SERVQUAL in four different types of retail stores using confirmatory factor analysis. They have not found a good fit to the proposed five-factor structure and concluded that unmodified SERVQUAL should not be used as a valid measure of service quality in a retail setting. However, they have not proposed any alternative acceptable structures or scales (20). Thus, SERVQUAL should not be considered an "off the shelf" measure of perceived service quality. Mattsson has found that the SERVQUAL scale of retailing is applicable for businesses offering more goods than services, like supermarkets. However, for the retailing contexts where the services are more prominent than the goods (e.g., electronics stores) SERVPERF is more appropriate (30).

Service quality in supply chain

In spite of the universal recognition of the importance of service quality in supply chains, it has not been studied adequately. Several researchers have attempted to develop a conceptual model of service quality in a supply chain context (14). It is clear that the majority of Res on the service quality have focused on the consumer (12). The lack of studies of the service quality in supply chains is noticeable. However, a variety of performance measures has been used to study the performance of supply chain systems. The SERVQUAL model differs from other scales since it applies the terms that describe determinants of service perception. Therefore, the five dimensions of SERVQUAL might be used to refine some aspects of service quality (5).

The Pharm industry uses many processes, operations, and management procedures involved in the discovery, development, and manufacture of drugs and medications. The PSCs are the paths through which the essential Pharms should be distributed to the consumer at the right quality, right place, and the right time (31). The PSCs are very complex and responsive to ensure the delivery of medicines to the patients at the right time and under the right circumstances, to cure diseases or alleviate suffering.

This is a very sensitive supply chain, in which even minor errors are unacceptable because of their direct impact on health and safety. Today, the Pharm industry is faced with many challenges. There is an ever-increasing competition, especially in the generics industry, and the need to reduce time-to-market periods. There are also constant demands to increase Res and development productivity and decrease the Pharm life cycles.

The companies have to face regulatory obstacles and barriers to entry into the global market, maintain production flexibility and decrease production costs (32). Figure 1 shows a simple model of a PSC. A PSC is made up of different members, including manufacturers, secondary producers, market warehouse/

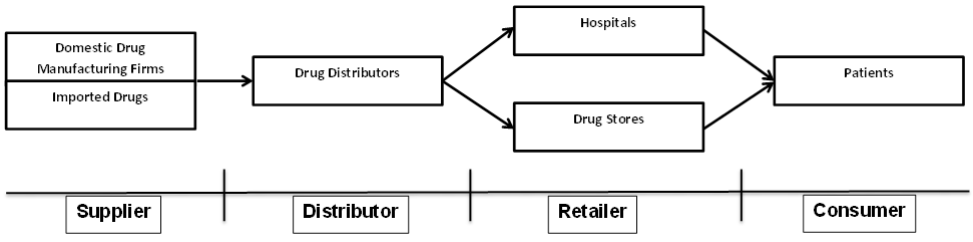

Figure1. Pharm supply chain.

distribution centers, wholesalers, retailers/ hospitals, and patients (33).

Methodology

Developing the SQMS

The five-dimension SQMS proposed by Parasuraman is the most frequently used method for measuring the service quality. It has been reported that this scale can be used to measure service quality in different areas, including supply chains (34) and hospital environment (35). Although it has been successfully used by Niaz Ahmad *et al*. in Pharm distribution sector (14), we decided to use this SQMS to measure the satisfaction level in the Iranian pharmacies that they are practicing in a supply chain at which the regulations and socioeconomic variables are entirely different from that of the mentioned study.

Refinement of the questionnaire

Parasuraman's SQMS includes five dimensions with 22 items. For the purpose of this Res, we held an expert panel with Pharm experts, sale managers, and purchasing agents. A questionnaire including 5 dimensions and 28 items was developed in Persian. Next the questionnaire was presented to 15 distributor–retailer experts to test the content and face validity of the modified SQMS. The comments of the participants were received within 5 working days.

The questionnaire was finalized after slight modification of some of the questions. It was based on a 5-point scale (1 for completely unimportant and 5 for very important). The questionnaire is presented in Table 1.

Data gathering

There are about 8500 pharmacies in Iranian and 24% of them (2000) are located in Tehran (36). Around 40 main distributors deliver medicines to the pharmacies in the country via their agencies. The distributors are allowed to provide services to any pharmacies and the pharmacies are free to choose the best service providers. In recent years, increasing numbers of distributors have highlighted the importance of competitive advantage and high-quality services. A suitable SQMS model for Iranianian Pharm industry is urgently needed, particularly for evaluation of distributors. Measuring the quality of current services in distributor–Pharm interface is also of great importance. We distributed 2050 questionnaires to pharmacies located in Tehran, and 400 were returned (response rate of 19.5%). The issue of response rate is a not critical matter, but rather it is so important a study to reach the number of returned questionnaires which are enough good to be representative a population for further analysis.

The details of respondent profiles are provided in Table 2.

Data analysis

Scale purification and statistical analysis

For assessing construct validity and reliability of dimensions and their related items, factor analysis and Cronbach's alpha were used, respectively. The following results were obtained:

- Reliability: This dimension included 8 items of which three were deleted (Rel6, Rel7, and Rel8); loading factors of remaining items were from 0.601 to 0.766. The average

Table 1. Questionnaire items.

Question number	Item	Deleted or Remained item after factor analysis
	Reliability	
Rel1	Temperature and humidity are controlled during transportation of drugs	Remained
Rel2	When you have any problem, distributor shows a sincere interest in solving it	Remained
Rel3	Shipments contain correct items	Remained
Rel4	Shipments contain incorrupt items	Remained
Rel5	Shipments contain incorrect quantity	Remained
Rel6	Records are kept confidential	Deleted
Rel7	Payment information is kept confidential	Deleted
Rel8	Distributor provides legal support when needed	Deleted
	Tangible	
Tan1	Distribution center has modern equipment (.(computers, air-conditioning, etc	Deleted
Tan2	Distributor has sufficient physical facilities for storing drug products	Remained
Tan3	The physical facilities at distribution center are visually clean	Remained
Tan4	Vehicles used in transportation are visually in a good condition	Remained
Tan5	Personnel handling drugs are professional in appearance	Remained
	Assurance	
Ass1	Personnel at the distribution center are trained	Deleted
Ass2	Order taking methods (including frequency) are accurate	Remained
Ass3	Order delivery methods (including frequency) are accurate	Remained
Ass4	Personnel in the distribution center are consistently courteous with you	Deleted
Ass5	Personnel in the distribution center have the knowledge to answer your queries	Deleted
Ass6	Personnel in the distribution center have the authority to solve your problems	Remained
Ass7	The distributors are consistently eager to provide you services	Remained
	Empathy	
Emp1	Distribution personnel fulfill your emergency orders	Remained
Emp2	Distribution center has office working hours suitable to you	Remained
Emp3	Distribution center has staff working hours suitable to you	Remained
Emp4	Methods designed for payments are convenient to you	Deleted
Emp5	Distribution center personnel's fulfills your specific requirements	Remained
	Responsiveness	
Res1	Distributor responds immediately to your enquiries	Remained
Res2	Distributor responds immediately to your complaints	Remained
Res3	When distributor promises to deliver by certain time, they do so	Remained

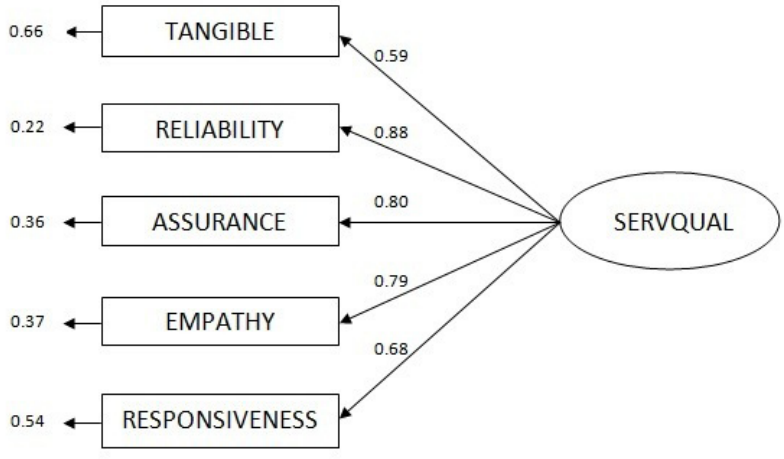

Figure 2. Structured model of SQMS.

variance extraction (AVE) of the items was 50%. Cronbach's coefficient alpha for this dimension was 0.739.

• Tangibility: This dimension included 5 items of which one of was deleted (Tan1) using confirmatory factor analysis (CFA). The factor loadings of the remaining items ranged from 0.683 to 0.768. The AVE of the items was 52%. Cronbach's coefficient alpha for this dimension was 0.69.

• Assurance: This dimension included 7 items of which three were deleted (Ass1, Ass4, and Ass5); loading factors of four remaining items were from 0.658 to 0.788. AVE of these

Table 2. Demographic profile of respondents.

Variable	Frequency (N)	Percent (%)
Age	47	11.8
25-34	137	34.2
35-44	146	36.5
45-54	58	14.5
55-64	12	3.0
65<	400	100
Total		
Gender	225	56.2
Male	175	43.8
Female	400	100
Total		
Working precedent		
<10 year	133	33.2
11-20year	123	30.8
21-30year	128	32
>30year	16	4
Total	400	100

Table 3. Factor analysis results.

Dimension	Mean	No. of deleted items	KMO	Average variance extracted (AVE) %	Factor Loadings	Cronbach's coefficient (α)
Reliability	4.5	3	0.791	50	0.601-0.766	0.739
Tangible	4.2	1	0.736	52	0.683- 0.768	0.695
Assurance	4.3	3	0.653	51	0.658-0.788	0.680
Empathy	4.4	1	0.685	54	0.663-0.861	0.711
Responsiveness	4.5	0	0.694	70	0.808-0.868	0.782

four items was 51%. Cronbach's alpha coefficient for this dimension was 0.680.

• Empathy: This dimension included 5 items, one of which was deleted using CFA (Emp4). The factor loadings of the remaining items ranged from 0.663 to 0.861. The AVE of the items was 54%. Cronbach's alpha coefficient for this dimension was 0.711.

• Responsiveness: This dimension included 3 items; none was deleted after CFA. The factor loadings of the related items ranged from 0.808 to 0.868. The AVE of the items was 70%. Cronbach's alpha coefficient for this dimension was 0.782.As we have mentioned earlier, the measurement instrument selected for this study is based on Parasuraman's model (4), modified after focus group discussions. Therefore, the content and face validity were verified.As Table 3. shows, all factor-loading values are higher than 0.6 and AVE values are higher than 50%; accordingly, convergent validity of the construct is confirmed. Furthermore, the value of the AVE for each dimension is more than squared value of the correlation between dimensions, demonstrating discriminant validity.Goodness for fit assessment of the overall model was conducted using LISREL 8.52 statistical package to capture the specified causal relationships in the purified and localized SQMS. These relationships, with associated statistical values, are illustrated in Figure 2.Table 4. shows absolute fit indicators, incremental fit indicators, and goodness-of-fit index (GFI). All the fit indices are within the acceptable ranges (37-40).

Discussion

This is the first study conducted to develop

Table 4. Goodness-of-fit measures.

Fitness indicator	Suggested criteria	Validation value
Absolute fit indicators		
c2/df	<3	2.8
GFI	>0.90	0.93
RMR	<0.05	0.04
RMSEA	<0.08	0.06
Incremental fit indicators		
AGF	>0.90	0.95
NFI	>0.90	0.96
CFI	>0.90	0.97
IFI	>0.90	0.94
Goodness of fit index		
PNFI	>0.5	0.6
PGFI	>0.5	0.7

an SQMS in Iranian PSC context. We obtained a reliable and valid measurement scale for measuring the service quality of the distributor–Pharm interface of PCS. We developed a measurement scale consisting of 5 dimensions, based on the previously published schemes (3, 4, 14). This scale is useful for assessing service quality of the distributor-pharmacy interface and can be used to improve the service quality and customer satisfaction. For the Pharm distributors, it is a suitable scale to achieve competitive advantage by analyzing the customer data.

LISREL results show that reliability dimension has the strongest effect on SQMS. This implies that the reliability is perceived to be the most important factor affecting the satisfaction of pharmacies receiving services from Pharm distributors. Considering the sub-items of the reliability, it can be argued that the Pharm managers are highly affected by the behavior of distributors such as their commitment to the qualitative and quantitative accuracy of deliveries and availability of the requested products. We believe that implementation of online ordering system can be a breakthrough for PSC with many benefits for both suppliers and buyers. Reports from other countries indicate that the role of government in enforcing that policy is greatly appreciated (41, 42).

According to the views of respondents, assurance was the second most important factor. The Pharm suppliers should select and train motivated people, to satisfy their customers by delivering precise and regular services. Their staff also should be competent enough to solve everyday problems.

In the current competitive market in PSCs, empathy with customers is of great importance; without it, a good interaction cannot be achieved. Indeed, the Pharm suppliers should try to establish the atmosphere of mutual understanding and trust. The next two factors affecting SQMS values were responsiveness and tangibility. The latter factor is associated with items, which are more tangible for pharmacies employees in comparison with others. Therefore, the suppliers should use neat and clean equipment, visibly in good condition.

This study confirmed the validity of the five dimensions of Parasuraman *et al.* using CFA (3, 4). However, our findings are not in line with the recently published study of Niaz Ahmad *et al.* who approved just four dimensions of the original work and excluded many items (14). In the context of PSC, this difference is not unexpected; it can be explained by the socioeconomic diversity of different nations.

Conclusions and limitations

As in other industries, Pharm companies are in intense competition with their rivals; an important part of this competition takes place in PSCs where Pharm distributors try to increase their market share by capturing the business of pharmacies. The satisfaction of pharmacies is critical for such companies. Our study contributes to the development of a valid and reliable framework for evaluation of the quality of services received by the pharmacies. Such framework can help the managers to make informed business decisions. The data for this study were collected from retailers in Tehran. Hence, service quality measurements for the retailers in cities other than Tehran may not necessarily follow the same pattern.

References

(1) Gupta TK and Singh V. Service quality in supply chain: A Review. *Int. J. Eng. Tech.* (2012) 2: 1395-1404.
(2) Mehralian G, Nazari JA, Zarei L and Rasekh H. The effects of corporate social responsibility on organizational performance in the Iranian pharmaceutical industry: *J. Clean. Prod.* (2016) 135: 689-98.
(3) Parasuraman A, Zeithaml VA and Berry LL. A conceptual model of service quality and its implications for future. *Res. J. Mark.* (1985) 49: 41-50.
(4) Parasuraman A, Zeithaml VA and Berry LL. SERVQUAL: a multiple item scale for measuring customer perceptions of service quality. *J. Retai.* (1988) 64: 12-37.
(5) Brady MK and Cronin JJ. Some new thoughts on conceptualizing perceived service quality: a hierarchical approach. *J. Mark.* (2001) 65: 34-49.
(6) Brown TJ, Churchill GA and Peter JP. Improving the measurement of service quality. *J Retailing.* (1993) 69: 127-39.
(7) Jain SK and Gupta G. Measuring service quality: SERVQUAL vs SERVPERF scales. *Vikalpa: J. Deci. Make.* (2004) 29: 25-37.
(8) Mehralian G, Rangchian M and Rasekh HR. Client priorities and satisfaction with community pharmacies:

the situation in Tehran. *Int. J. Clin. Pharm.* (2014) 36: 707–15.
(9) Cronin JJ and Taylor SA. Measuring service quality: a reexamination and extension. *J. Marke.* (1992) 56: 55-68.
(10) McAlexander JH, Kaldenberg DO and Koenig HF. Service quality measurement: examination of dental practices sheds more light on the relationships between service quality, satisfaction, and purchase intentions in a health care setting. *J. Healthc. Mark.* (1994) 34: 34-40.
(11) Lee H, Delen LM, Bunda MA and Kim C. Methods of measuring health-care service quality. *J. Bus. Res.* (2000) 48: 233-46.
(12) Seth N, Deshmukh SG and Vrat V. A conceptual model for quality of service in the supply chain. *Int. J. Phys. Distrib. Log. Manag.* (2006) 36: 547-75.
(13) Rivachandran K and Tamil Mani B. Influence of service quality on customer satisfaction application of Servqual model. *Int. J. Bus. Manag.* (2010) 5: 117-24.
(14) Muhammad Usman Awan NA, Raouf A and Sparks L. Development of a service quality scale for Pharm supply chains. *Int. J. Pharm. Healthc. Mark.* (2009) 3: 26-45.
(15) Ennew CT, Reed GV and Binks MR. Importance-performance analysis and the measurement of service quality. *Eur. J. Mark.* (1993) 27: 59-70.
(16) Grönroos C. A service quality model and its Mark implications. *Eur. J. Mark.* (1984) 18: 36-44.
(17) Lewis BR and Mitchell VW. Defining and measuring the quality of customer service. *Mark. Intell. Plan.* (1990) 8: 11-7.
(18) Boulding W, Ajay K, Staelin R and Zeithaml VA. A dynamic process model of service quality: from expectations to behavioral intentions. *J. Mark. Res.* (1993) 30: 7-27.
(19) de Ruyter KO and Wetzels M. On the complex nature of patient evaluation of general patient service. *J. Econ. Psychol.* (1998) 19: 565-90.
(20) Finn DW and Lamb CW. An evaluation of the Servqual scales in a retailing setting. *Adv. Consu. Res.* (1991) 18: 483-90.
(21) Edvardsen B, Tomasson B and Ovretveit J. Quality of service: Making it really work (1994) McGraw-Hill. New York. NY.
(22) Naik CNK, Gantasala SB and Prabhakar GV. Service quality (Servqual) and its effect on customer satisfaction in retailing. *Eur. J. Soc. Sci.* (2010) 16: 231-43.
(23) Seth N, Deshmukh SG and Vrat P. Service quality models: a review. *Int. J. Qual. Reli. Manag.* (2005) 22: 913-49.
(24) Ramezani Ghotabadi A, Bahrun R and Feiz S. A review of service quality models. 2nd International conference on management (2nd icm 2012) proceeding. Available at: www.internationalconference.com.my
(25) Rust RT and Oliver RL. Service quality: Insights and managerial implications from the frontier in: Service Quality: New directions in theory and practice. (1994) SAGE Publications, Inc. Chapter 1: 1-19.
(26) Dabholkar PA, Thrope DI and Rentz JO. A Measure of service quality for retail stores: scale development and validation. *J. Academy Mark. Sci.* (1996) 24: 3-16.
(27) Carman JM. Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *J. Retai.* (1990) 66: 33-55.
(28) Babakus E and Boller GW. An empirical assessment of the SERVQUAL scale. *J. Bus. Res.* (1992) 24: 253-68.
(29) Robinson S. Measuring service quality: current thinking and future requirements. *Mark. Intell. Plan.* (1999) 17/1: 21-32.
(30) Mattsson J. A service quality model based on an ideal value standard. *Int. J. Serv. Ind. Manag.* (1992) 3: 18-33.
(31) Mehralian G, Zarenezhad F and Rajabzadeh Gatari A. Developing a model for an agile supply chain in Pharm industry. *Int. J. Pharm. Healthc. Mark* (2015) 9: 74-91.
(32) Shabaninejad H, Mirsalehian MH and Mehralian G. Development of an integrated performance measurement (PM) model for pharm industry. *Iran. J. Pharm. Res.* (2014) 13: 207-15.
(33) Rajabzadeh Ghataria A, Mehralian G, Zarenezhad F and Rasekh H. Developing a model for agile supply: An empirical study from Iranian pharm supply chain. *Iran. J. Pharm. Res.* (2013) 12: 189-201.
(34) Rafele C. Logistic service measurement: a reference framework. *J. Manuf. Technol. Manag.* (2004) 15: 280-90.
(35) Babakus E and Mangold WG. Adapting the SERVQUAL scale to hospital services: An empirical investigation. *Health Serv. Res.* (1992) 26: 767–86.
(36) Mehralian G, Yousefi N, Hashemian F and Maleksabet H. Knowledge, attitude and practice of pharmacists regarding dietary supplements: A community pharm-based survey in Tehran. *Iran. J. Pharm. Res.* (2014) 13: 1455-63.
(37) Huang F. Social science statistics–structural equation modeling. (2004). WuNan, Taipei.
(38) Sila I and Ebrahimpour M. Critical linkages among TQM factors and business results. *Int. J. Oper. Prod. Manag.* (2005) 25: 1123-55.
(39) Hair JF, Anderson RE, Tatham RL and Black WC. Multivariate date analysis. (1998) 5th ed. Prentice-Hall. Upper Saddle River. NJ.
(40) Mehralian M, Nazari JA and Rasekh H. Exploring the relationship between the knowledge creation process and intellectual capital in the Pharm industry. *Learn. Organ*. (2014) 21: 258-73.
(41) Herrick DM, Linda Gorman L and Goodman JC. Health information technology: Benefits and problems (2010) National center for policy analysis: ncpa. Policy Report No. 327
(42) Mehralian G, Rangchian M, Javadi A and Peiravian F. Investigation on barriers to Pharm care in community pharmacies: a structural equation model. *Int. J. Clin. Pharm*. (2014) 36: 1087–94.

This article is available online at http://www.ijpr.ir