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REVIEWS

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Primary health care quality in Iran: a systematic review and meta-analysis

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary Quality measurement is the first step in improving overall quality. Servqual has been identified as one of the most important methods frequently used in assessing the quality of healthcare services. This study aims to systematically review and conduct meta-analysis of conducted studies in this regard in which Servqual tools were used to assess and measure the quality of services. In this systematic review and meta-analysis, the required data were collected using several keywords (and their Persian equivalents): services quality, Servqual, quality, gap, primary health cares, health services, Iran. The databases searched were as follows: PubMed, Scopus, Google Scholar, SID, Magiran, and Iranmedex. The comprehensive meta-analysis (CMA) software, Version 2 was used for data analysis. Based on the random effect model, the total mean score of Service Consumers' perception, Service Consumers' expectation and the gap between them were estimated as being 3.81 (95% CI: 3.56–4.06), 4.49 (95% CI: 4.31–4.67) and -0.83 (95% CI: -065 – -1.01), respectively. The lowest score of consumers' perception of services quality, was related to the empathy dimension (3.57) and the highest score of consumers' expectation of services quality was related to the reliability dimension (4.60). Furthermore, there was a quality gap in all dimensions. In order to achieve desired quality and meet service receivers' needs, attention should be always given to their views, so that proper planning can be done to address existing problems through assessing views. Should such be undertaken, we would be able to witness services quality improvement.
Key words: delivery of health care, quality of health care, meta-analysis, Iran.

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Background

Not enough attention has been paid to the issue of quality in the service sector as compared with the manufacturing sector. However, quality concepts and quality management can also be addressed in this sector in order to improve the quality of the services provided [1, 2]. Services quality means that to what extent the provided services meet the consumers' expectations, which is realized if a proper response is given to the consumers' expectations, since consumer centeredness in services and products is considered in most definitions [3, 4]. In other words, service quality is a comparison between what a consumer feels it should be (expectation of the service quality) and what is received (perceived quality). If a consumer's expectations are greater than perceptions, the quality of the received services is seen as being low in his/her view which can lead to dissatisfaction [5]. Expectation of quality is the same as consumers› wants of required quality which is influenced by various factors such as personal needs, past experiences, connections with others, and the current situation of the person [6].

Some factors clearly affect the perception of the quality of the services. These factors include a friendly atmosphere in the workplace, a clean environment, the presence of supportive factors, and the skills and characteristics of the managers [7, 8].

Most efforts undertaken to improve health care systems put the quality of services and care at the center of attention. This is the first step in the area of improving quality of quality measurement [9]. The success of these quality improvement programs depends on identification of strengths and weaknesses of services provided [10] and accurate identification of consumers and their needs and expectations [11].

Servqual has been identified as one of the most important methods frequently used in assessing the quality of healthcare services. It measures the consumers' perception and expectation within five service dimensions: tangibility, empathy, assurance, responsiveness and reliability [12, 13].

In recent years, in the service sector, one of the fastest growing industries has been health care services. There is a significant pressure on health care providers due to the rapidly changing environment which forces organizations to reassess their strategies in order to face unstable situations in the future and do their own planning based on these changes [14]. Among sectors providing health care services, health centers have a special position since this sector is related to a wide range of populations, and more importantly, they are responsible for

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Table 1. The mean score of the consumers' perception and expectation of the service quality and the gap between them

Perception		Expectation		Gap	
Assurance	3.82	reliability	4.60	tangibility	-0.89
Reliability	3.77	assurance	4.58	reliability	-0.85
Responsiveness	3.69	responsiveness	4.49	responsiveness	-0.82
Tangibility	3.58	tangibility	4.45	empathy	-0.81
Empathy	3.57	empathy	4.35	assurance	-0.77

an important mission which is the health and well-being of the society [15]. Moreover, in many national health systems, the health of the population mainly depends on the primary health care offer [16].

Given the importance of the identification of the perceptions of service receivers in health care centers, in order to improve the quality of health care services and design plans to reduce the possible gap between the current and desired status, this study was performed for systematic review and meta-analysis of the conducted studies that have utilized the Servqual model.

Objectives

This study aims to systematically review and conduct meta-analysis of conducted studies in which Servqual tools were used to assess and measure the quality of services.

Material and methods

The systematic review and meta-analysis was undertaken in 2015 according to The Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) statement [17, 18].

Study identification

The search was conducted on August 2015 and no restrictions were placed on the study date. The required data were collected using several keywords (in English and in Persian): services quality, Servqual, quality, gap, primary health care, health services, Iran. The following databases were searched: PubMed, Scopus, Google Scholar, SID, Magiran, and Iranmedex. Hand searching of relevant journals and reference lists was also undertaken. The references were exported and managed using Endnote X5 software and duplicates were removed.

Study selection

Two reviewers (A.M., S.R.) screened the titles and abstracts independently to identify potentially relevant articles that evaluated the consumers' viewpoints about primary health care quality. The inclusion criteria were then independently applied to full text papers by each reviewer. Disagreements were resolved by consensus with a third reviewer (H.AG).

Assessment of study quality

The study quality was independently evaluated on the basis of the 'Strengthening the Reporting of Observational Studies in Epidemiology' (STROBE) checklist [19]. Articles were included if they were original researches, were performed in primary health care centers, reported the mean score of the perception and expectation of health service consumers regarding the primary health care quality, were published in English or Persian, and were conducted in Iran. Articles were excluded if they did not meet the inclusion criteria. Case reports, interventional studies, and proceeding papers were excluded. Articles were excluded when there was no consumer sampling.

Data extraction

Two reviewers extracted the data using a standard data collection form. The following data were extracted from eligible articles: author(s), publication year, sample and sample size, mean score of the dimensions of services quality and main findings (Table 1).

Data analysis

Proportion meta-analyses were performed using the Computer software CMA 2 (Comprehensive Meta-Analysis) (Englewood, NJ, USA). The chi-square test and I^2 were used to evaluate the heterogeneity of the studies. As heterogeneity was found among the selected studies (chi-squared p-value < 0.05 or I^2 > 50%), the random effects model was used with a 95% confidence interval. The funnel plot was used to assess publication bias and Microsoft Office Excel 2010 was used to draw the graphs.

Results

Characteristics of the studies

Of the 217 screened articles, 10 eligible studies that met the inclusion criteria were included in the systematic review. Their details are described in Table 2. The studies were conducted between 2006 and 2013, and 3764 consumers were recruited into the study populations. Figure 1 presents the detailed results of the review. All articles analyzed that assessment viewpoint of service consumers about primary health care quality in Iran by Servqual questionnaire.

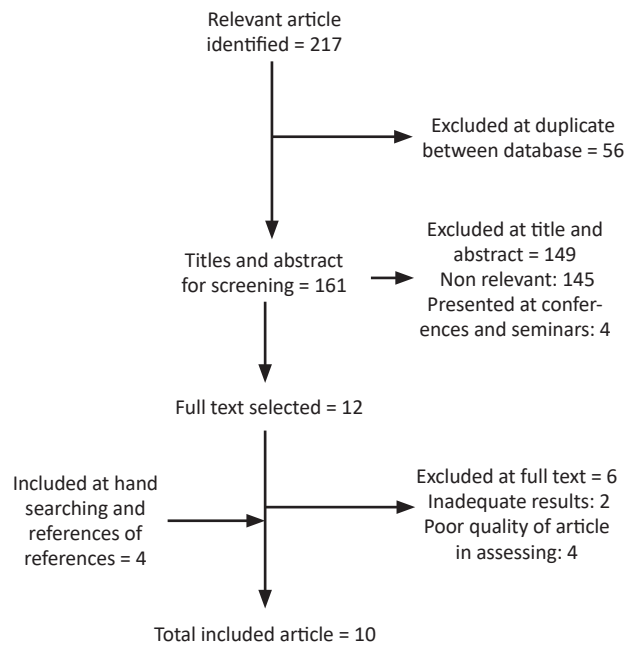

Figure 1. Flow diagram for study selection

Table 2. Extraction table																	
Author, Year	Sample & sample size	Tangibility			Reliability			Responsiveness			Assurance			Empathy			
		Mean (Perception)	Mean (Expectation)	Gap	Mean (Perception)	Mean (Expectation)	Gap	Mean (Perception)	Mean (Expectation)	Gap	Mean (Perception)	Mean (Expectation)	Gap	Mean (Perception)	Mean (Expectation)	Gap	
Mohammadi A, Shoghli AR: 2009 [42]	females that were visited in health care centers of Zanjan, 300	3.20	4.33	-1.13	2.97	4.30	-1.33	2.93	4.23	-1.30	3.1	4.28	-1.18	2.85	4.16	-1.33	
Tarrahi MJ, et al. 2012 [15]	people who attended the health care centers of Khorramabad, 650	3.93	4.80	-0.87	4.34	4.88	-0.54	4.20	4.78	-0.58	4.26	4.84	-0.58	3.89	4.79	-0.90	
Esmaeili Shahmirzadi S, et al. 2013 [43]	people attending public health care centers of Rey city, 200			-1.03			-1.09			-1			-0.96			-1.01	
Esmaeili Shahmirzadi S, et al. 2013 [43]	people who were referred to collaborative health care centers of Rey city, 200			0.88			-0.86			-0.85			-0.77			-0.92	
Gholami A, et al. 2011 [44]	females visited in health care centers of Neyshabour, 400	3.95	4.63	-0.68	4.25	4.88	-0.63	4.16	4.83	-0.67	4.26	4.88	-0.62	4.23	4.83	-0.59	
Kebriaei A, Akbari F. 2006 [12]	females visited in primary health care services in Kashan, 324	3.06	3.98	-0.92	3.23	4.34	-1.11	3.01	4.13	-1.12	3.12	4.17	-1.05	2.92	3.94	-1.02	
Ghanbari S, et al. 2013 [45]	females visited in health care center under the supervision of Shahid Beheshti University of Medical Sciences, 500	3.39	4.07	-0.68	4.13	4.42	-0.27	4.11	4.27	-0.15	4.3	4.45	-0.14	3.86	4.07	-0.21	
Nabilou B, Rasouli J. 2013 [46]	females attending health care centers of West Azerbaijan province, 390	3.56	4.60	-1.04	3.50	4.62	-1.12	3.42	4.57	-1.15	3.59	4.61	-1.02	3.46	4.46	-1.00	
Agha Molaei T, et al. 2008 [47]	females visited at health care centers of Bandar Abbas, 400	3.60	4.55	-0.94	3.81	4.65	-0.83	3.78	4.62	-0.84	3.92	4.68	-0.76	3.47	4.45	-0.98	
Gholami A, et al. 2009 [48]	females attendimg health care centers of Urmia, 400	3.94	4.67	-0.73	3.94	4.72	-0.78	3.88	4.5	-0.62	4.04	4.72	-0.68	3.88	4.11	-0.23	

Total mean score of Servqual

With regard to the score of consumers' perception of the quality of the services, the highest and lowest score was related to the dimensions of "assurance" (3.82) and "empathy" (3.57), respectively. As for the expectation of service quality, the highest and lowest scores were related to "reliability" (4.60) and "empathy" (4.35), respectively. In addition, the present study showed that the highest and lowest difference in the gap between perception and expectation of service quality was related to "tangibility" (-0.89) and "assurance" (-0.77), respectively.

As shown in Figure 2, the total mean score of the service consumers' perception was 3.81 based on the random effect model (95% CI: 3.56–4.06). The 95% CI for the mean score is drawn in the horizontal line format for each study (Q = 973.18, df = 7, p < 0. 001, I^2 = 99.28). Also, the total mean score of the service consumers' expectation was determined as 4.49, based on the random effect model (95% CI: 4.31–4.67). The 95% CI for the mean score is drawn in the horizontal line format for each study (Q = 1801.6, df = 7, p < 0. 001, I^2 = 99.61) (Figure 3). The total mean score of the gap between perception and expectation was determined as -0.83, based on the random effect model (95% CI: -065 – -1.01). The 95% CI for the mean score is drawn in the horizontal line format for each study (Q = 944.6, df = 9, p < 0. 001, I^2 = 99.04) (Figure 4).

The highest score of consumers' expectation of services quality was related to the reliability dimension (4.60) and there was a quality gap in all dimensions. To evaluate the publication bias, funnel plotting was applied. The result of this funnel plot reveals there was possibility of publication bias among the studies.

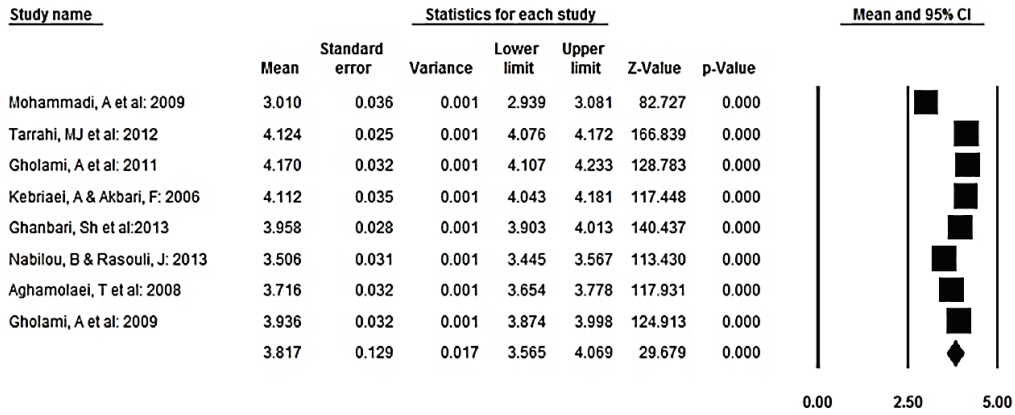

Figure 2. The total mean score of service consumers' perception

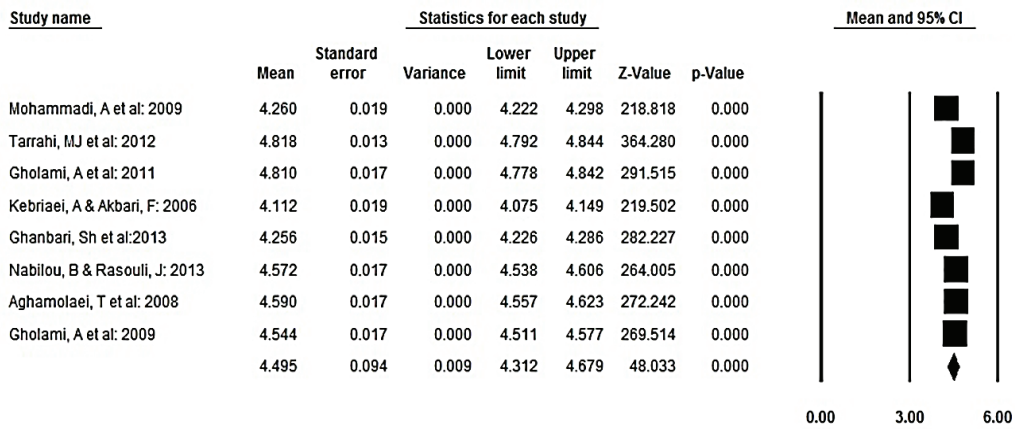

Figure 3. The total means score of service consumers' expectation

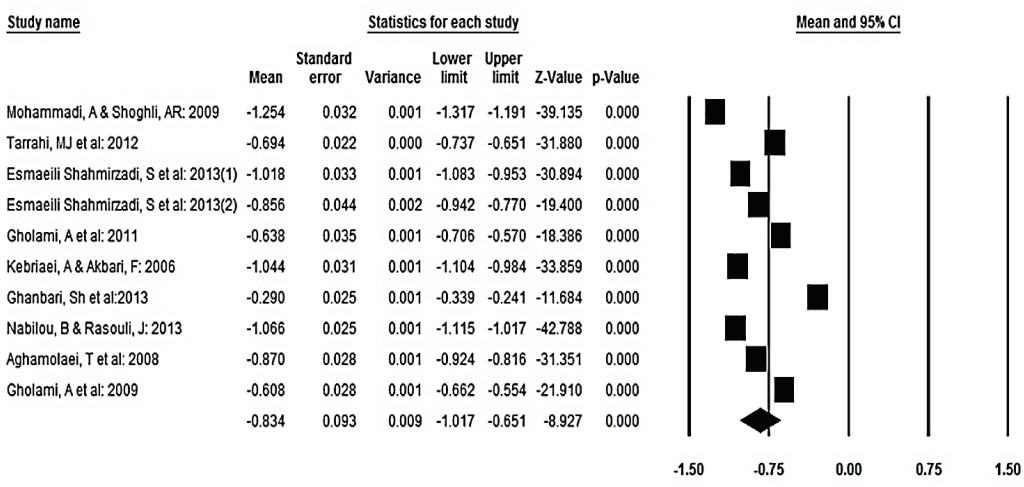

Figure 4. The total means score of gap

Discussion

The total mean score of the service consumers' perception, expectation, and the gap between them was 3.81 (95% CI: 3.56–4.06), 4.49 (95% CI: 4.31–4.67), and -0.83 (95% CI: -065 – -1.01), respectively.

The results of the study of the current gap between perception and expectation of services quality in health centers in all dimensions showed that this gap was negative in each of the five dimensions. The results of a study conducted by Lim and Tang to measure the patients' perception and expectation of the quality of hospital services in Singapore also showed that the score of quality in all five dimensions was negative [20]. The results of other studies on the quality of hospital services also suggest a negative gap between all dimensions of patients' and service receivers' expectations and perceptions of the quality of the services provided [21–26]. Moreover, studies conducted in teaching and educational centers in this field have reported a negative gap between all dimensions [27–33]. A negative gap means that the current quality from the viewpoint of the users of the centers is estimated to be lower than their expectation or desired status. In this case, the processes should improve to increase the quality of the services. The identification of consumers' wants and perception of quality of services is a major step to reduce the difference between the expectations and perceptions of service recipients. Through identifying current differences, not only resources allocation will be facilitated, however, there will be a basis for improving the quality of services provided [34].

With regards to the score of the consumers' perception of service quality, the highest score was related to "assurance" (3.82) and lowest score was related to "empathy" (3.57). Other conducted studies have also reported "assurance" as the dimension with the highest score [22, 24, 25, 27, 29, 35]. The mean score of "empathy" can be increased through taking some actions; for example, understanding and paying attention to users' and patients' needs and requirements, respecting their beliefs and cultural values, creating empathy and bonding with individuals, making a proper emotional connection, as well as paying attention to their personal needs. The results of a study conducted to evaluate the patients referred to health centers of the quality of primary health services in London revealed a significant difference between age groups in terms of the perception of the quality of services; the perceived quality of the services was more desirable among older people (except for the "tangibility" dimension) [36]. As a result, when providing services, this issue must always be taken into account – that gender and age differences between individuals should be considered since there are different viewpoints and perceptions of the service quality among different age groups, and the provision of services that may satisfy a certain age group, may not be true in other age groups. As for "empathy", holding courses on methods of proper communication with clients and patients may make patients feel better in terms of the personnel's companionship with them.

Another result of the present study was that in expectation of the services quality, the highest and lowest score was related to "reliability" (4.60) and "empathy" (4.35), respectively. In some studies "reliability" has been shown to be of importance to service receivers. These include the work of Hekmatpou et al. [24], Mohammadi et al. [37], Węgłowski et al. [38] and Asadi et al. [39]. Reliability of the services means that the services are provided in a valid and reliable way [14, 40]. The reliability of the services for individuals can be created and the gap between perception and expectation in this dimension can be, to some extent, reduced through providing services in the determined time, addressing the complaints of the clients and patients, protecting their information confidentiality and privately, and deploying professional personnel and qualified physicians. Reliability can be considered as one of the most important dimensions for health care organizations. Trust and reliance on appropriate and timely services, as well as the quality of these services is directly related to the skill and ability of staff in this sector.

What is more, another finding of the present study was that the highest and lowest difference in the gap between perception and expectation of services quality was related to "tangibility" (-0.89) and "assurance" (-0.77), respectively. Studies consistent with the current study have reported the highest gap in "tangibility" [41]; however, in studies conducted by Kebriaei and Akbari [12] and Lim and Tang [14], the lowest quality gap was seen in "tangibility". Tangibility includes items such as appropriate and updated equipment, staff appearance, physical situation, clean and proper environment, facilities, and convenient amenities, as well as providing the services in accordance with the commitments. Conditions, amenities, and physical facilities are among the first factors that clients may face which give them a positive or negative image. Since "tangibility" often has major effects on service receivers, attention to this dimension and providing proper physical situations are of great importance.

Limitations of the study

The lack of access to some databases can be considered a limitation of the current study. In addition, articles included in the study were only in English and Persian languages and the reviewed papers were limited to published material; important perspectives from non-published work may have been overlooked. In addition, according to the number of studies, it was not possible to categorize the articles based on the type of criteria. Another limitation of the current study was possibility of publication bias and heterogeneity in the results; in this regard, it is recommended that when using the results, readers should pay attention to this issue.

Conclusions

The gap between current and desired quality of services requires continuous planning to promote the processes in order to achieve quality improvement. The main goals of providing services to the clients of health centers are to address their problems and to improve their physical and mental conditions; thus, these services should be reliable, respectful, trustworthy, and accurate, and should be provided fast enough by competent and qualified personnel working in a proper environment. Furthermore, in order to achieve the desired quality and meet the service receivers' needs, attention should be always paid to their views, so that proper planning can be made to address the existing problems through the assessment of the views. In this way, we would able to witness an improvement in the quality of the services, in particular in the "tangibility" and "reliability" dimensions.

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Conflicts of interest: The authors declare no conflicts of interest.

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