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Service Quality Assessment of Hospital Libraries: a LibQUAL+ Survey

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Abstract

Objective: The purpose of this research is to evaluate the hospital libraries service quality of Shahid Beheshti University of Medical Sciences from the users' perspectives based on the LibQUAL+ model. Furthermore, is to make a comparison between library services of general hospitals versus specialized one.

Materials and methods: The survey used the LibQUAL+ model to evaluate service quality of libraries of general as well as specialized hospitals of Shahid Beheshti University of Medical Sciences (12 libraries) (Iran). The data were collected from library clients by administering the LibQUAL+ questionnaire in a printed format.

Results: It has been revealed that hospital libraries have succeeded in satisfying the minimum expectations of its users but could not meet the customers' desired expectations that make them delighted. Information Control is the least satisfying dimension, whereas the Library as a place is the most satisfying dimension. The users are more satisfied with general hospitals library services rather than specialized ones in all dimensions.

Conclusion: The hospital libraries failed to meet the minimum expectations of users in two dimensions of information control and the library as a place. Thus, it is suggested to improve the quality and quantity of library facilities and to create a pleasant atmosphere for users by considering a proper space for the study of clients. This will lead to help hospital libraries to meet the desired level of requirements of medical community users.

Keywords: Hospital library, Library service quality, LibQUAL+, Medical libraries, Quality assessment

1 Introduction

Hospital libraries are among the most important centers for the dissemination of medical information for the community of physicians, paramedics, specialists, faculty members, and medical students. Up-to-date information should be made available to medical community due to the constant growth and progression of medical science. Libraries are aware of this requirement and always strive to make new information available, but the quality of services is a matter that should be controlled and improved by libraries.

2 Problem statement

Currently, hospital libraries are essential to provide and disseminate up-to-date information to health care providers. The main task of hospital libraries is to present and store information resources for medical professionals, including faculty members, nurses, medical students, and health workers in specialized fields in order to meet their information needs for patient care (Van Gieson, 1978).

The services provided by hospital libraries should be in line with the expectations and information needs of the community of physicians and paramedics. To recognize the expectations of users and satisfy them with the current services, the libraries must measure the quality of their services to be able to know and improve their services quality. Improving the quality of services provided by these centers can play a significant role in realizing the goals of hospitals in relation to care, education, improved performance and safety of patients as well as R&D and community health.

To assess the quality of library services, several tools are existing, including LibQUAL that is based on users' opinions and expectations about the services that should be provided by libraries.

LibQUAL is a common approach to measure the quality of library services (LibQUAL+ 2018 Survey, 2018), which examines the quality of library services in three dimensions: the affect of

services, information control, and library as a place. The affect of services denotes the human dimension of the quality of services or library as a set of employees. Information control considers library as a collection of resources (access at any place and time, timeliness of access, access tools). In library as a place dimension, attention is paid to the location of components related to physical and spatial quality of the library(Cook, Heath, Thompson, & Webster, 2003; *LibQUAL+ 2018 Survey*, 2018). LibQUAL tool examines the quality of services at three levels of minimum, maximum, and existing (available). The minimum level of services is a level that if a library provides to users, they will not be dissatisfied but their full satisfaction will not be met. The maximum level of services is the expected level that would be quite satisfactory if provided to users by the library. The perceived level is the level of the service that the library currently provides to users.

This model enables the users to communicate to libraries the services that need to be improved and upgraded and contribute in improving the quality of library services.

Shahid Beheshti University of Medical Sciences (SBMU) is one of the top universities of Iran. This university deals with education of students in different disciplines and levels and has 12 educational hospitals, whose libraries provide medical services and disseminate medical information to faculty members, residents, interns, nurses, and health care staff. Hospital libraries are responsible for providing knowledge-based information services in the field of medical and health sciences. Hospital libraries should be able to provide the information required by medical specialists in their daily clinical practice and answer their questions in the field of health information and they should respond to information and educational needs of health care consumers.

3 Literature review

Several studies have considered the quality of university libraries, and LibQUAL is widely used by libraries to understand the quality of services (Fagan, 2014). Nevertheless, few studies have been conducted on the evaluation of hospital libraries. In some studies, the minimum level of user expectations has been met. In this regard, Kumar and Lau research can be noted (Kumar & Mahajan, 2019; Lau, 2018). Anil Kumar and Preeti Mahajan in 2019 conducted a LibQUAL study to Evaluate library service quality of University of Kashmir. The research findings showed that the library has met the minimum expectations of users in three dimensions of LibQUAL; however, none of the dimensions could meet the maximum of users' expectations. Moreover, the “library as a place” and “information control” dimensions acquired the highest degree of users' satisfaction (Kumar & Mahajan, 2019). In 2018, Lao performed a study to assess students' perceptions and expectations of library services at Georgia southern university by LibQUAL tool. The results showed that the level of library services in all dimensions of LibQUAL was higher than the minimum expectations of users and that the library had been able to meet the satisfaction of its users (Lau, 2018).

Nevertheless, in some other studies, even the minimum user expectations have not been met. In this regard, Mallya research can be noted (Mallya & Patwardhan, 2018). Jyothi Mallya and Valsaraj Payini conducted a research to evaluate the overall satisfaction of hospitality students towards library services in Karnataka, India. The findings showed that users were most satisfied with the affect of services, and the least satisfaction was located in library as a place dimension and even the minimum expectations of users were not met (Mallya Jyothi & Payini Valsaraj, 2018). In few studies, the service provided is above the user expectations level. A research was conducted aimed at assessing the quality of services provided by Tabriz Central Library from users' point of

view based on LibQUAL model. The findings showed that the level of services provided in all three dimensions of LibQUAL was higher than the minimum expectations of users and that the users were satisfied (Ziaei & Korjan, 2018). In another study, a research was conducted entitled: "the Quality assessment of library services of Baba Farid and Faridkot Medical Sciences Universities: A LibQUAL study". The research findings indicated that the users were fully satisfied with the services provided by the libraries(Bhanu & Manoj Kumar, 2017).

4 Research Objective

It can be inferred from the literature review that LibQUAL studies have been carried out worldwide to evaluate the different type of libraries performance from users' perspective. Very limited studies have been carried out to evaluate hospital libraries using LibQUAL standard as far as Iran is concerned. The concept of hospital library and use of LibQUAL is still in initial stage in countries such as Iran and other countries. While improving the quality of services offered by hospital libraries plays a major role in achieving the goals related to care, education, performance, and safety of patients, as well as research, and health of community. Furthermore, there is no study, which has compared general hospital libraries versus specialized hospital libraries service quality. In this context, the present study will add to literature. Therefore, the present study is an attempt to fill the research gap in the field of hospital library assessment, especially in the context of Iranian general and specialist hospital libraries. Thus, the aim of this research is to evaluate the quality of hospital libraries services of SBMU from the viewpoint of users by applying the LibQUAL+ tool. The Specific Research objectives are as followed:

1. To investigate the gap between users' expectations and their understanding of the perceived level of hospital libraries services of SBMU in terms of all the services.

2. To investigate the gap between users' expectations and their understanding of the perceived level of hospital libraries services of SBMU in each dimension of LibQUAL (the affect of services, information control, and library as a place).
3. To investigate the minimum, maximum, and perceived level of libraries services expected by users in the dimension of the affect of services in the surveyed hospitals.
4. To investigate the minimum, maximum, and perceived level of libraries services expected by users in the dimension of information control in the surveyed hospitals.
5. To investigate the minimum, maximum, and perceived level of libraries services expected by users in the dimension of library as a place in the surveyed hospitals.
6. To rank the hospital libraries of SBMU based on the quality of provided services.

5 Research hypothesis

There is a correlation between the quality of services and the specificity of hospital libraries of SBMU.

6 Research methodology

The present research is a gap analysis research. The research population consisted of the clients of 12 hospital libraries affiliated to Shahid Beheshti University of Medical Sciences. Among the 12 hospitals affiliated to SBMU, the three are general hospitals and nine hospitals are specialized hospitals which present services in just one specialty, including ophthalmology, orthopedics, pediatrics, urology, and Lung diseases. In this study, this division was considered, and general and specialized hospitals were compared. The randomized sampling method was used and the sample

size (277) was calculated by $n = \frac{z^2_{1-\frac{\alpha}{2}} \times \sigma^2}{d^2}$ formula. The interview method was used to conduct the

present study and the data were collected using a standard LibQUAL questionnaire in printed format (LibQUAL+ 2018 Survey, 2018). The difference in averages of the minimum acceptable and perceived levels of library services is called adequacy gap, which is determined by subtracting the average of minimum acceptable level of services from the average of perceived level of library services. If the gap score is positive, the level of received services is higher as much as the score value than the minimum acceptable level of services. A negative gap score indicates that the level of received services is lower as much as the score value than the minimum acceptable level of services. The difference in averages of the most desired expected level of services and the perceived level of library services is known as superiority gap, which is determined by subtracting the average of the most favorable expected level of services from the average of perceived level of library services. If the gap score is positive, the level of received services is higher as much as the score value than the most favorable expected level of services. A negative gap score shows that the level of received services is lower as much as the score value than the most favorable expected level of services.

The data were analyzed using SPSS version 18 software. Descriptive statistics, including frequency tables and figures were used to describe the characteristics of the participants and their response to questions. The non-parametric Wilcoxon test was used to determine the difference between the current situation with students' maximum and minimum expectations. The independent t-test was used to test the research hypothesis and compare the quality between two types of hospitals (general and specialized).

7 Results

The demographic profile of the respondents is presented in Table 1. Out of 277 respondents, 107 (61%) were female and 170 (39%) were male. In terms of job status, most respondents (71.48%) were students. Considering the education level, most participants in this research (58.12%) were Ph.D. students (Table 1).

<i>Demography</i>	<i>Status</i>	<i>Frequency</i>	<i>%</i>
<i>Gender</i>	<i>Female</i>	<i>107</i>	<i>61%</i>
	<i>Male</i>	<i>170</i>	<i>39%</i>
<i>Occupational status</i>	<i>Employee</i>	<i>57</i>	<i>20.58%</i>
	<i>Students</i>	<i>198</i>	<i>71.48%</i>
	<i>Academic staff</i>	<i>9</i>	<i>3.25%</i>
	<i>Others</i>	<i>13</i>	<i>4.69%</i>
<i>Education level</i>	<i>Bachelor</i>	<i>40</i>	<i>14.44%</i>
	<i>Masters</i>	<i>36</i>	<i>12.99%</i>
	<i>Ph.D.</i>	<i>161</i>	<i>58.12%</i>
	<i>Postdoctoral</i>	<i>39</i>	<i>14.07%</i>
	<i>Unknown</i>	<i>1</i>	<i>0.36%</i>

Table 1. Distribution of respondents by gender, occupational status, and education level

The findings for each of the research objectives are as followed:

7.1 Objective 1: *"to investigate the gap between expectations and understanding of users of the exiting status of services provided by libraries of SBMU"*.

The mean level of maximum and minimum expectations, perceived level, adequacy and superiority gaps for the entire services of SBMU libraries are presented in Table 2. The adequacy gap of the entire of libraries services is positive (0.13), and they have met the minimum expectations of their users. Superiority gap of all the libraries services is equal to -2.03, indicating

a large gap between maximum expectations of users and the existing status. In other words, the studied libraries have failed to meet the maximum expectations of users.

	Maximum expectations		Superiority		Perceived level		Adequacy		Minimum expectations	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Table 2. Mean of total service quality indicators for libraries	7.9	1.12	-2.03	1.63	5.88	1.56	0.13	1.75	5.75	1.61

7.2 Objective 2: *“to investigate the gap between users' expectations and their understanding of the existing status of services in hospital libraries of SBMU in each of the LibQUAL dimensions (the affect of services, information control, and library as a place”.*

The adequacy gap in information control (0.11) and library as a place (0.14) dimensions is positive (Table 3), indicating the satisfaction of users with the perceived level of services in the studied libraries compared to the affect of service (-0.62) dimension. The superiority gap is also negative in all the three dimensions, with the largest gap in the information control dimension (-2.31) indicating that the distance between the maximum expectations of users of library services and the exiting status in this dimension is higher than in the other two dimensions (Table 3).

LibQUAL dimensions	Minimum expectations		Maximum expectations		Perceived level		Adequacy		Superiority	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Affect of services	5.75	1.78	7.94	1.18	6.37	1.88	-0.62	1.89	-1.56	1.68
Information control	5.6	1.79	7.81	1.35	5.49	1.9	-0.11	1.96	-2.31	1.95
Library as place	5.9	1.81	7.97	1.31	5.77	1.84	-0.14	2.17	-2.2	2

Table 3. Rate of satisfaction from services of libraries by each of the LibQUAL dimensions

7.3 Objective 3: *"to investigate the minimum, maximum, and perceived level of libraries services expected by users in the affect of services dimension for each of the surveyed hospitals."*

The gap between users' expectations and their understanding of the existing status of the studied libraries in the affect of services dimension is shown in Figure 1. In all the libraries, the perceived level of services is lower than the maximum level of services expected by users. In all studied libraries except Shahid Modarres and Akhtar hospitals, the average of perceived level of services is higher than the average of minimum services expected by users, and these libraries have met the minimum expectations of users.

7.4 Objective 4: *"to investigate the minimum, maximum, and perceived level of libraries services expected by users in the dimension of information control in the surveyed hospitals".*

Figure 2 shows the gap between users' expectations and their understanding of the existing status of the studied libraries in the information control dimension. The Mean level of existing services in all the studied libraries is lower than the average of the maximum level of services expected by users.

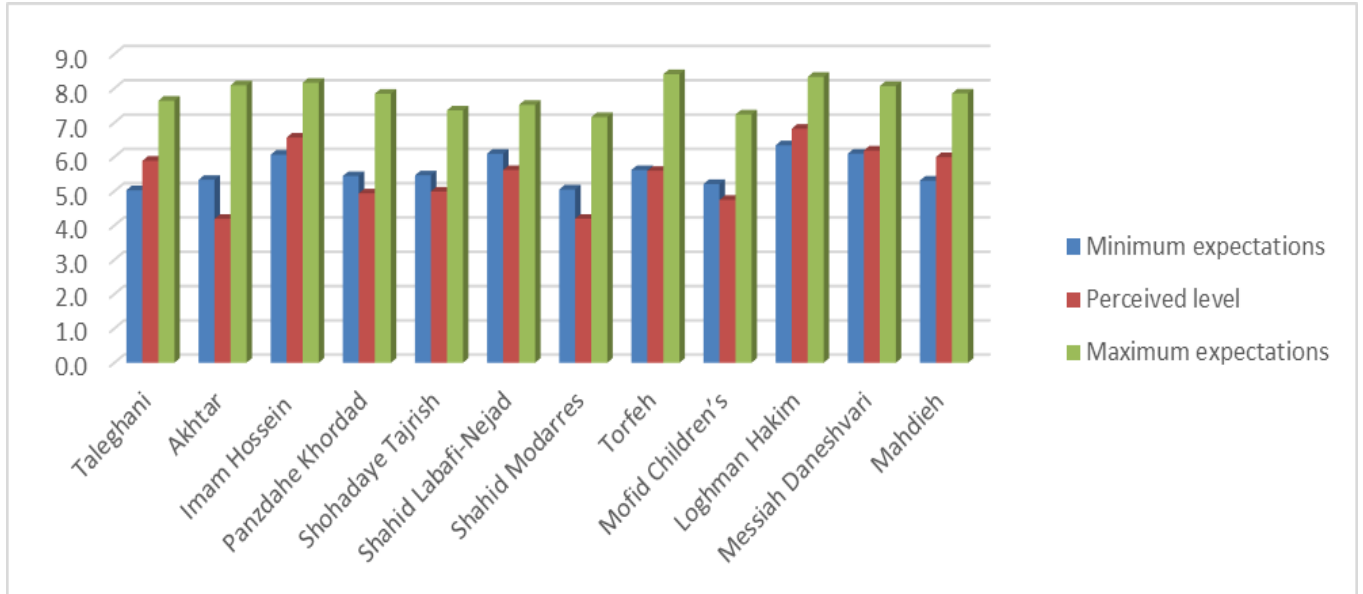


Figure 1 User Satisfaction in service affect dimension per hospital

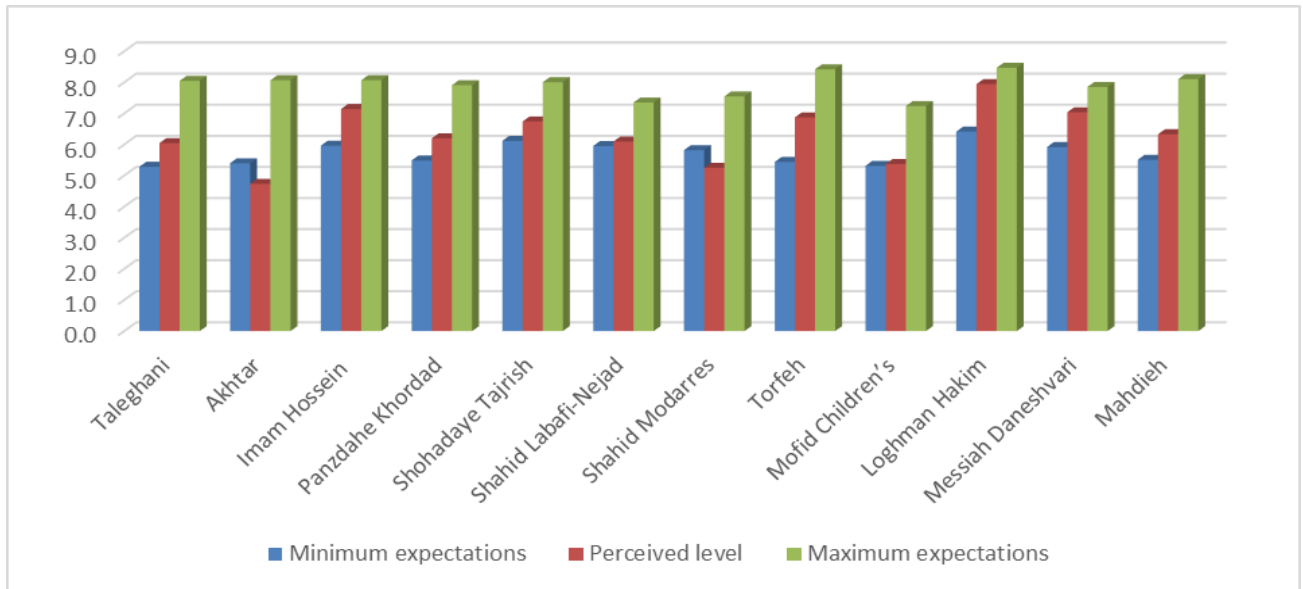


Figure 2 User satisfaction in information control subscale per hospital

7.5 Objective 5: "to investigate the minimum, maximum, and perceived level of libraries services expected by users in the library as a place dimension"

Figure 3 shows the gap between users' expectations and their understanding of existing status of the studied libraries in library as a place dimension. The average level of existing services in all the studied libraries is lower than the average of the maximum level of services expected by users.

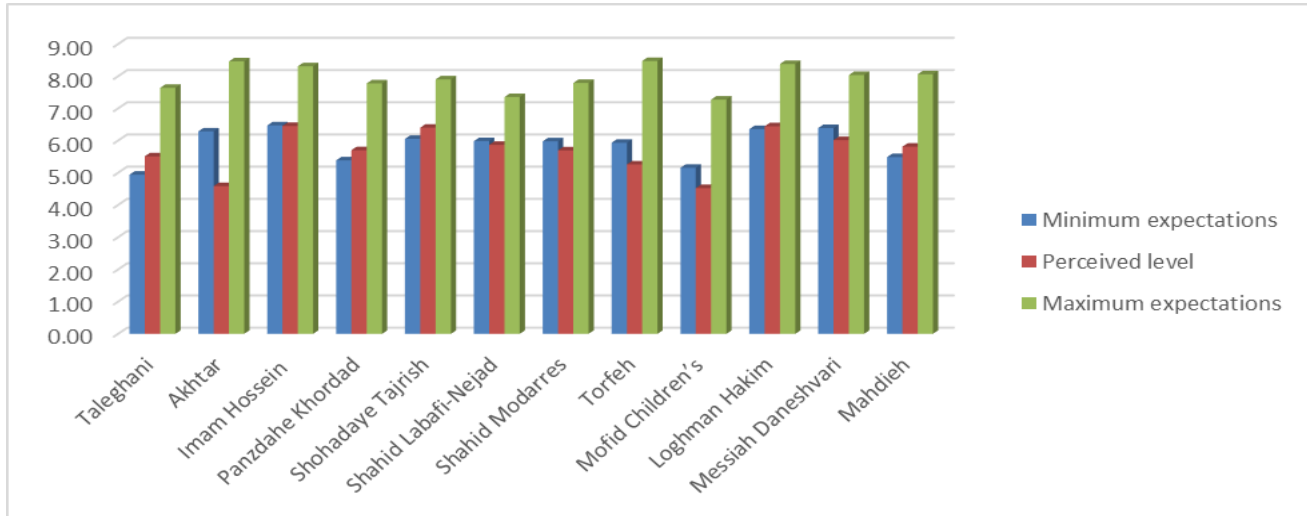


Figure 3 Satisfaction of users in library as a place dimension per hospital

7.6 Objective 6: "to rank the hospital libraries of Shahid Beheshti University of Medical Sciences based on the quality of provided services".

The average satisfaction rate of users with hospital libraries is shown in figure 4. The library of Loghman-Hakim Hospital has met the highest average satisfaction rate of users (7.07) and the lowest average satisfaction rate is related to the library of Akhtar Hospital with average current satisfaction rate equal to 4.51. Mofid Children's, and Akhtar hospitals had the lowest ranks which both are specialized hospital libraries.

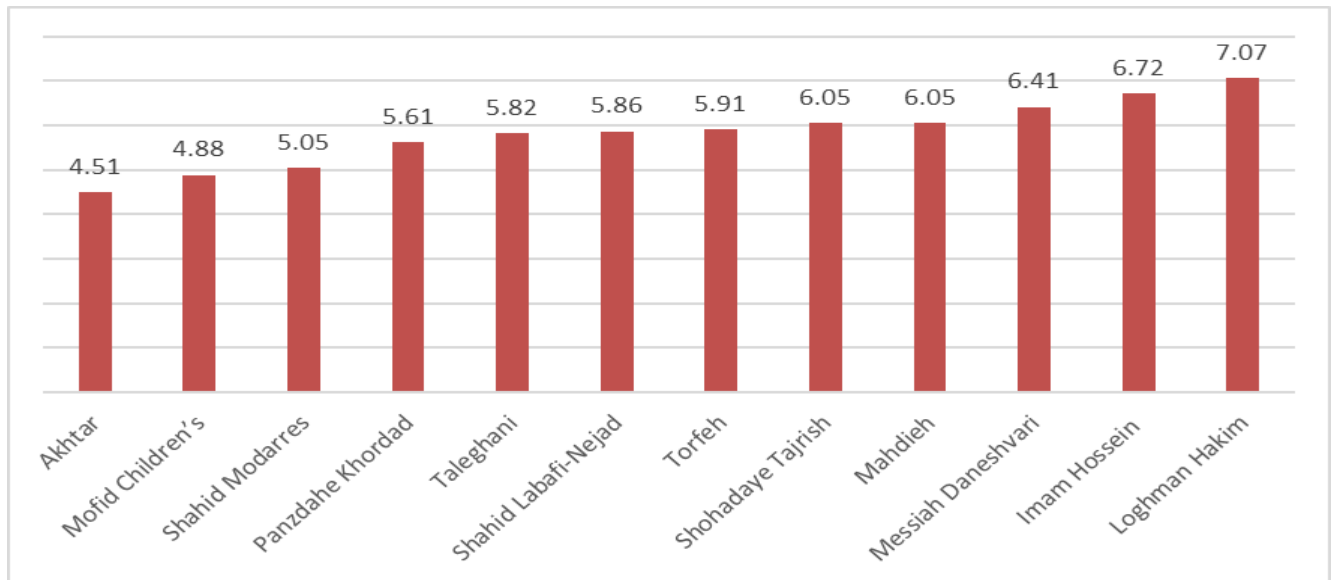


Figure 4 Hospital ranking in terms of users' satisfaction with library services

7.7 Hypothesis: *There is a correlation between the quality of services and specificity of hospital libraries of Shahid Beheshti University of Medical Sciences.*

Independent t-test was used to compare general and specialized hospitals, which showed a significant difference (P-Value = 0.03). The relationship between the satisfaction level of library users with general and specialized hospitals in the affect of services dimension is statistically significant. Overall, the users are more satisfied with general hospitals library services than specialized ones in all dimensions. Users of general hospitals libraries with a mean of 6.73 compared to users of specialized ones with a mean of 6.23 have the highest satisfaction with existing state of the quality of library services. In the information control dimension, there is a significant relationship between the satisfaction of users with general and specialized hospitals, which means that users of general hospitals with an average of 5.78 compared to users of specialized ones with an average of 5.38 have the highest satisfaction with existing status of the quality of library services. Moreover, in the library as a place dimension, there is a significant

relationship between the satisfaction of users of general and specialized hospitals, and users of general hospitals with a mean of 6.21 compared to users of specialized ones with an average of 5.58 are most satisfied with existing status of the quality of library services.

	Hospital	LibQUAL dimensions	Number	P- value	Mean	SD
Table 4. Comparison of specialization of hospitals and satisfaction with services of the libraries examined in terms of LibQUAL dimensions	General	Affect of services	78	0.034	6.73	1.65
		Information control	78	0.111	5.78	1.8
		Library as place	78	0.008	6.21	1.68
	Specialized	Affect of services	199	0.034	6.23	1.94
		Information control	199	0.111	5.38	1.92
		Library as place	199	0.008	5.58	1.87

8 Discussion and conclusion

The findings of the study showed that libraries of SBMU hospitals provide a minimum level of their users' expectations for all library services and that the quality of libraries services is higher than the minimum acceptable level by users. Therefore, the adequacy gap of libraries of the studied hospitals is positive. However, the superiority gap of these libraries is negative, and the maximum of users' expectations has not met (Table 2).

8.1 Evaluation of the adequacy and superiority gap in LibQUAL dimensions in general:

In the affect of service dimension, the hospital libraries of Shahid Beheshti University of Medical Sciences have been able to satisfy the minimum expectations of their users. (Table 3). This component is essential because users need relevant updated information for their research needs(Pareek & Rana, 2013) and the clients expect that employees pay more attention to them and sufficient knowledge of the staffs is of little importance for clients(Ziaei & Korjan, 2018). Hence,

further attention must be paid to these cases. In some researches on academic libraries, on public libraries, and a research on National Library, the minimum expectations of users in the affect of services dimension have been met(Kamaruddin, Baharuddin, & Mustaffar, 2014; Kumar & Mahajan, 2019; Lau, 2018; Mallya Jyothi & Payini Valsaraj, 2018; Ziaei & Korjan, 2018). However, Priyanwada research on academic libraries and Partap study on medical science libraries show that the studied libraries have failed to provide the minimum expectations of their users(Bhanu & Manoj Kumar, 2017; Wanigasooriya, 2018).

In the information control dimension, the hospital libraries studied in this research have not been able to meet the minimum expectations of their users. The average of adequacy gap of the studied libraries is negative (Table 3). Similarly, in a study on medical science libraries, the findings showed that the information control dimension has failed to provide the minimum expectations of their users(Bhanu & Manoj Kumar, 2017). However, in some studies on university libraries, and a study on National Library, the results indicated that the studied libraries have managed to meet users' expectations in this dimension(Kumar & Mahajan, 2019; Lau, 2018; Rehman, 2016; Ziaei & Korjan, 2018). It seems that medical sciences libraries have not paid enough attention to the needs and satisfaction of users in the information control area in comparison with academic libraries.

In the library as a place dimension, the hospital libraries studied in this research have not been able to meet the minimum expectations of their users. The average of adequacy gap of the studied libraries is negative(Table 3) which is also mentioned in studies on academic libraries(Bhanu & Manoj Kumar, 2017; Lau, 2018; Mallya Jyothi & Payini Valsaraj, 2018; Wanigasooriya, 2018). It is concluded that the hospital libraries studied in Iran as well as libraries of other global centers have not been able to create a suitable space for the study of users and that the users are dissatisfied

with the libraries' environment and space. Considering that library space is highly important for users, the design of libraries must receive more attention.

In general, the libraries studied in this research have failed to meet the maximum expectations of their users in all dimensions and there is a gap between the perceived level of services and the maximum expectations of users. These findings indicate that the quality of services of the studied libraries is much lower than the most desirable level of users' expectations (Table 3). This result is consistent with findings of the researches on university libraries, and a research on National Library, in which, all three dimensions of LibQUAL had a negative superiority gap same as the present study and the studied libraries did not meet their users' maximum expectations (Kumar & Mahajan, 2019; Lau, 2018; Mallya Jyothi & Payini Valsaraj, 2018; Ziaei & Korjan, 2018). The largest superiority gap in the libraries studied in the present research is related to the information control dimension (Table 3), indicating that easy access to information, the availability of audiovisual resources, as well as electronic and printed matters have not succeeded to meet the satisfaction of clients in terms of providing useful equipment and resources at a desirable level, while in some researches, the lack of or unavailability of resources are known as the most important factors the difficulties ahead in the searching for information (Valizadeh-Haghi & Rahmatizadeh, 2018). The lowest superiority gap in the studied libraries is related to the affect of services dimension (Table 3). Considering that the recruitment of specialist librarians as well as their knowledge and behavior are emphasized in the affect of services dimension, it is suggested to pay more attention to selection of librarians in these centers to increase the satisfaction of users in this dimension. In addition to having enough knowledge, it is necessary for the staff to pay more attention to dealing with clients. The superiority gap in the studied libraries in the library as a place dimension is also negative, and the libraries have failed to meet the maximum expectations of their

users (Table 3). In this regard, hospital libraries need to pay more attention to the library space and consider a relaxed and attractive environment for individual and group study of their users because the clients mind their own comfort in an attractive environment to spend hours of studying in addition to having access to useful resources in the library.

8.2 Assessment of LibQUAL dimensions in each of the hospital libraries and their ranking:

In the affect of services dimension, all libraries (except two) have met the minimum expectations of their users (Figure1).

The average level of existing services in most of the studied libraries (58.33%) was lower than the average of the minimum level of services expected by users, meaning that libraries could not provide their users with their minimum expectations, and the average was higher (41.6%) than the average of the minimum level of services expected by users in only five libraries (Figure 2).

In the library as a place dimension, the library of Taleghani Hospital has performed better than other libraries. Only in five libraries (41.6%) the average level of existing services was higher than the average of the minimum level of services expected by users, and rest of the studied libraries (58.33%) failed to meet the minimum expectations of their users (Figure 3).

The ranking of the hospital libraries affiliated to Shahid Beheshti University of Medical Sciences shows that in terms of quality and average satisfaction of users, the libraries of Loghman Hakim, Imam Hossein, and Masih Daneshvari hospitals are ranked first to third. Among specialized hospitals, the libraries of Loghman Hakim and Akhtar hospitals had the highest and the lowest average satisfaction of users with a mean of 7.07 and 4.51, respectively (Figure 4).

Since the hospitals affiliated to SBMU are general and specialized, there was a significant relationship between satisfaction with general and specialized hospital libraries. The libraries of general hospitals met the minimum of users' expectations compared to those of specialized hospitals. User satisfaction with libraries of general hospitals in all dimensions of LibQUAL+ was

higher than that with specialized hospital libraries (Table 4). As a result, general hospital libraries have had better performance than specialized hospital ones. Specialized hospitals operate only in a single specialty and have more educational and therapeutic aspects compared to general hospitals. Furthermore, the needs of clients in libraries of specialized hospitals are different from those in general hospital libraries. Therefore, considering the weaknesses of the studied libraries in all three dimensions of LibQUAL+ and due to the specialty of these hospitals, it is necessary to pay more attention to recruitment of skilled librarian to meet the expectations of clients as well as providing the specific resources for specialists. In addition, it is essential to prepare adequate facilities, including electronic, print, and audiovisual resources, and improvement of library websites, as well as providing a convenient library space for the study of clients. In this research, considering that the clients were more satisfied with general hospital libraries than specialized hospital ones, general hospital libraries could be a model for specialized hospital libraries to consider the criteria for promoting the quality of their services.

9 Conclusion

In the present study, the studied hospital libraries failed to meet the minimum expectations of users in two dimensions of information control and library as a place and library managers are recommended to pay more attention to these dimensions. In this regard, easy access to information can be mentioned as an example. Moreover, in terms of the quality of resources, it is necessary to enrich the print and electronic resources of libraries. On the other hand, it is suggested to improve the quality and quantity of library facilities. In addition, the managers can create a pleasant atmosphere for users by considering a proper space for the study of clients. In this way, hospital libraries can meet the minimal requirements of users and focus on reaching the quality of the library to a desirable level.

10 Limitations and future research

This study is limited to SBMU only. Future research can be carried out including other hospital libraries throughout Iran ensuing larger sample size to get more accurate results so that its findings can be generalized to all hospital libraries. Moreover, the psychometric analysis can be done to investigate factors which are affecting the expectations of clients of general hospital libraries as well as specialized hospital libraries.

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