

Service quality dimensions regarding maternal and child health-care provided to the beneficiaries attending a Nagrik Hospital Rohtak Haryana

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ABSTRACT


Background: Understanding service quality dimensions regarding maternal and child health (MCH) care are important for their utilization, and it could help in planning interventions for their betterment. It also encourages adherence to the services and contributes to enhancing the quality of MCH care services provided in health-care facility. **Objective:** The objective of the study was to determine the services quality dimensions related to MCH care provided to beneficiaries. **Materials and Methods:** A cross-sectional, descriptive study conducted in Nagrik Hospital among women of reproductive age group (15–49 years) who had come at least once previously to avail the MCH services. Systematic random sampling and exit interview technique were followed and data collected using pre-designed, pre-tested semi-structured schedule and permission from Institutional Ethics Committee Maulana Azad University Jodhpur taken. To determine services quality dimensions related to MCH care, factor analysis was used. This statistical approach was utilized to construct new factors affecting the quality of MCH care services availed by the beneficiaries. The analysis was done using software Statistical Package for the Social Sciences for Windows version 18.0. **Results:** Among 226 study participants, 125 beneficiaries utilized maternal health care services and 101 availed child health-care services. Health-care provider's characteristics, expectations of beneficiaries toward health-care services attributes were found statistically significant toward perceived satisfaction for utilization pattern of MCH care services. **Conclusion:** Services quality dimensions related to MCH care provided to beneficiaries concluded as health-care provider's characteristics, expectations of beneficiaries toward health-care services and support and help by supporting staff such as Yashoda, Class IV employees, and sweepers from this study.

KEY WORDS: Service Quality Dimensions; Patient Satisfaction; Maternal and Child Health-care Services; Nagrik Hospital

INTRODUCTION

In the World Health Organization's (WHO) widely adopted framework quality of care (QoC) was recognized as a key element for improved health outcomes and efficiency

with regard to health system strengthening in resource-poor countries.^[1] The notion of quality is a priority for any health-care system because of the rising costs of treatments, constrained resources in health services and evidence of variations in clinical practice.^[2] A quality health-care system is one which guarantees the continuum of care, not merely for curative services, but for health promotion as well as prevention^[3] and it must be able to provide responsive health-care service where all patients regardless of their origin, status, and background receive prompt attention by the hospital staff with courtesy and cooperation.^[4] Assessment of quality focuses on technical concerns as well as the process

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through which care is delivered becomes more authentic and legitimate if it based on the application of professional standards integrating the patients' views, experiences, and perceptions.^[3,5,6] More so, over the patient's assessment of the health services and the health staff in view of improving the level of quality, is, in fact, respects the consumer sovereignty and democratization of health-care services.^[7,8] Hence, the WHO had developed an influential concept to measure client experiences ultimately relates to respecting human rights specified for the context of health-care provision.^[9-11] In addition, patient's satisfaction is a reflection of patient's judgments of different domains of health care including technical, interpersonal, and organizational aspects and is essential to improve design and management of health-care system.^[12]

In developing-countries context, with considerable gaps in services, the emphasis has been placed on increasing service availability, but efforts to ensure QoC and recording women's perceptions and needs during childbirth which have not been sufficient.^[13,14] Service utilization and positive maternal and neonatal outcomes can be significantly enhanced by improving quality of facility deliveries and making them more acceptable to women.^[15] Maternal satisfaction has often been defined using theoretical models of patient satisfaction. However, there is consensus that it is a multidimensional concept, influenced by a variety of factors.^[16,17] It is therefore also defined as "positive evaluation of distinct dimensions of childbirth."^[18]

There are very few studies carried out in India to ascertain service quality dimensions related to maternal and child health (MCH) care services with respect to the public health sector at district level of health-care facility. Thus, the study in this context helps in planning interventions for the betterment of MCH care services available at the district public health facilities encourage adherence to the services and contributes to enhancing the quality of health-care services provided in the Nagrik Hospital.

Objective

The objective of the study was to determine the services quality dimensions related to MCH care provided to beneficiaries.

MATERIALS AND METHODS

Study Settings

This study was conducted at Nagrik Hospital (secondary level public health-care facility at district) Rohtak, Haryana.

Study Design

This was a cross-sectional, descriptive study.

Study Subjects

Women of reproductive age group (15–49 years) who attended the district hospital for availing MCH care services in the Out-patient department (OPD) during the study period, i.e., October 1, 2016–March 31, 2017.

Inclusion Criteria

The following criteria were included in the study:

1. Women of reproductive age group (15–49 years) who availed MCH services during the study period
2. The beneficiaries who had come at least once previously to avail the MCH services.

Exclusion Criteria

The following criteria were excluded from the study:

1. Those study participants who had not given consent for the study
2. Those patients who had been referred by doctor
3. Those patients who had come for other than MCH care services or suffering from mental illness.

Sample Size

For determining service quality dimensions related to MCH care services, patient's satisfaction was taken into account. Taking the average value of patient's satisfaction for MCH services (63.95%) based on the previous epidemiological studies which vary from 38.5% to 89.4%.^[19-25] Moreover, allowable error of 10%, the target sample size was calculated using the Cochran's sample size formula^[26] for quantitative categorical data,

$$N = \frac{4pq}{L^2} = \frac{4 \times 0.639 \times 0.361}{(0.1 \times 0.639)^2} = 226$$

Where N = estimated sample size

p = the estimate of the variance = 0.639 (proportion of satisfaction with MCH care services according to the average value of satisfaction in previous studies.^[19-25])

$$q = (1-p) = (1-0.639) = 0.361$$

L = acceptable margin of error, i.e., allowable error = 10% of p.

Sampling Technique

Study participants were selected from the registration register through systematic random sampling from those visiting for OPD treatment for availing MCH care services, and every 10th patient was interviewed through exit interview technique.

Study Tool for Data Collection

A pre-designed, pre-tested, and semi-structured schedule was adapted for data collection. The questions were developed from a previously published study done by Husan *et al.*^[20] and

Verma *et al.*,^[23] the questions were asked in the vernacular language of the study subjects.

Modified Kuppaswamy's classification adjusted according to the consumer price index for the month of June 2012 was applied for assessing the socio-economic status of the study subjects.^[27]

Ethical Issue

Permission from Institutional Ethics Committee Maulana Azad University Jodhpur (Enrollment no. 15035351110018) was taken.

Written permission of Medical Superintendent District Hospital Rohtak was taken for conducting the study.

Written informed consent of study participants was taken before starting the interview with understanding so that identity will not be revealed in any form and the data collected utilized only for research purposes.

Data Analysis

The complete schedules were checked for completeness and coded for entering into Microsoft Excel 2010. Data cleanup was performed to check for accuracy, consistencies, and completeness. Data were tabulated and analyzed using software Statistical Package for the Social Sciences for Windows version 18.0.

RESULTS

The present cross-sectional descriptive study was carried out in District Secondary level public health-care facility to determine the service quality dimensions related to MCH care provided to beneficiaries. Among 226 study participants, 125 beneficiaries utilized maternal health-care services and 101 beneficiaries availed child health-care services. In the present study, the age of respondents ranged from 18 years to 35 years with the mean age of 24.2 ± 4.4 years. For availing child health-care services, 101 respondents were accompanied by their children. The age of children accompanying the respondents ranged from 2 months to 60 months with the mean age of $18.25 \pm (17.8)$ months.

To determine services quality dimensions related to MCH care, factor analysis was used. This statistical approach was utilized to construct new factors affecting the quality of MCH care services availed by the beneficiaries.

Both Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy tests were used to determine the appropriateness and factorability of the matrix as a whole. Bartlett's test of sphericity was found to be significant and KMO measure >0.5 , meaning thereby factorability is assumed [Table 1].^[28]

Table 2 showed the total variance contributed by the variables for the assessment of dimensions of quality of MCH care services by Extraction Method of Principal Axis Factoring. Table 3 found service quality dimensions using rotated factor matrix for given set of variables (Rotation Method using Varimax with Kaiser Normalization). Rotation converged in three iterations. Tabachnick and Fidell stated that variable with factor loadings equals to 0.45 was considered as average whereas loading 0.32 was considered less good.^[29] Hence, in this way, it was observed that service provider's (Doctor) characteristics, service expectations by beneficiaries, and support and help provided by supporting staff were come out to be dimensions determining quality of services provided to the beneficiaries.

DISCUSSION

The socio-demographic characteristics of study respondents provide useful insight into factors which govern their health seeking behavior for availing MCH care services. The present study explained the health-care provider's characteristics toward MCH care services [Table 4]. The difference in the perceived behavior regarding attentive listening to their problems, opportunity is given to beneficiaries, support given to beneficiaries, maintenance of confidentiality, and privacy during history taking and examination by various health-care service providers was found statistically significant ($P < 0.05$). The present study explored the responses regarding expectations of majority of the respondents about various services at health-care facility for utilization [Table 5]. The difference in expectation perceived for various services at health-care facility before utilization was found to be statistically significant ($P < 0.05$). Principal Axis Factoring explored the total variance explained at six stages for factors that affect quality of mother and child health-care services among beneficiaries. Six factors were extracted, but eigenvalues of initial two factors taken into consideration were >1 and for third factor it was approaching to nearly one. When these six factors were extracted, then 62.4% of the variance could be explained by first three factors. It was noted that the percentage of total variance contributed

Table 1: Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity to test appropriateness of factor analysis

S. No.	Measure of factor analysis applicability	Measured values
1	Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy Bartlett's Test of Sphericity	0.625
2	Approx. chi-square df Significance	68.801 15 0.001

Minimum required Kaiser-Meyer-Olkin measure of sampling adequacy=0.5

Table 2: Total variance contributed by the variables for the assessment of the quality of maternal and child health-care services

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1.70	24.41	28.41	1.04	17.47	17.47	0.89	14.96	14.96
2	1.11	18.57	46.99	0.41	6.85	24.32	0.56	9.35	24.32
3	0.92	15.43	62.43						
4	0.85	14.24	76.68						
5	0.74	12.37	89.05						
6	0.65	10.94	100.0						

Extraction method: Principal axis factoring

Table 3: Rotated factor matrix

Variables	Factor	
	1	2
Service provider's (Doctor) characteristics	0.56	-0.03
Service expectations by beneficiaries	0.45	-0.06
Support and help provided by supporting staff	0.40	0.67
Service provider's (pharmacist) characteristics	0.29	0.18
Service provider's (Lab technician) characteristics	0.33	0.03
Availability of facilities	-0.09	0.25

Rotation method: Varimax with Kaiser Normalization. Rotation converged in three iterations

services quality the factors which had steep slope were the responsible factors, a large percentage of total variance was explained by these factors. However, shallow slope of scree plot indicated contribution to total variance was less by those factors. In the above plot, the first three factors which were having steep slope are health-care provider's (Doctor's) characteristics, expectations of beneficiaries toward health-care services, and support and help by supporting staff such as Yashoda, Class IV employees, and sweepers. Hence, maximum variance explained by these factors while the rest of the factors contributed to lesser extent as less percentage of variance is explained by those factors [Figure 1].

Various studies reported similar attributes related to socio-demographic characteristics of the present study [Table 6].^[19-22,27,30-33] Similar observations were made by Aldana *et al.* in their study "Client satisfaction and quality of health care in rural Bangladesh" in year 2001. The authors explored that the most powerful predictor for client satisfaction with government health-care services was health care providers' behavior, especially respect and politeness.^[25] Kersnik and Ropert also demonstrated in their study that important factor for client satisfaction with government health-care services was service provider's behavior and competency and technical skills during history taking and examination.^[34] Rao *et al.* conducted a study in year 2006 on "Toward patient-centered health services in India – a scale to measure patient perceptions of quality." The authors revealed that health-care providers' behavior plays a key role to measure patient perceptions about quality of health-care services.^[35] However, Misra *et al.* described that major proportions of beneficiaries told that they were explained about their problems and listened to their problems attentively by health-care providers.^[36] Hasan *et al.* in their study described expectation levels were found good among 35% of the patients.^[20] However, in our study, it was perceived as good by 87% of the beneficiaries. The findings were comparatively higher which might be due to the good reputation of this public health-care facility in the region.

by first component, i.e., behavior, attentive listening to the problems of beneficiaries, maintaining privacy during history taking, and examination by health-care provider (Doctor) was 24.4%, by second component (service expectations by beneficiaries) was 18.5%, and by third component (provided support and help by supporting staff such as Yashoda, Class IV employees, and Sweepers) was 15.4%. Hence, there were total three distinct factors (which determine the dimensions of MCH care services) for the given set of variables considered [Table 2]. After performing Varimax Rotation Method with Kaiser Normalization, Factor 1 comprised four items with factor loadings ranges from 0.33 to 0.56. The items in Factor 1 were health-care provider's characteristics (behavior toward beneficiaries, attentively listening to their problems, maintaining privacy during history taking, and examination), expectations of beneficiaries toward health-care services (support of health-care service providers, cleaning of the hospital equipment, and supply of the medicines), and support and help provided by supporting staff such as Yashoda, Class IV employees, and Sweepers. These variables were highly correlated and contribute to this single factor. Factor 2 comprised single most important item with factor loading 0.67. The most important variable was highly correlated and contribute to this factor was support and help provided by supporting staff [Table 3]. The scree plot had given the number of factors against the eigenvalues and determined the optimal number of factors. For determining dimensions related to MCH care

Table 4: Distribution of respondents according to characteristics of health care service providers (n=226)

Service provider	Characteristic				
	Perceived behavior at their first contact with service provider				
	Bad	Average	Good	Total	P value*
Doctor	14 (6.2)	80 (35.4)	132 (58.4)	226 (100)	0.001*
Staff nurse	45 (20.0)	154 (68.1)	27 (11.9)	226 (100)	
Laboratory technician	25 (11.1)	84 (37.2)	117 (51.7)	226 (100)	
Pharmacist	24 (10.7)	100 (44.2)	102 (45.1)	226 (100)	
Supporting staff	40 (17.7)	131 (58.0)	55 (24.3)	226 (100)	
Service provider	Perceived behavior regarding attentive listening of the problems by the health-care service providers				
	Bad	Average	Good	Total	P value
	Doctor	22 (9.7)	92 (40.7)	112 (49.6)	226 (100)
Staff nurse	48 (21.2)	141 (62.4)	37 (16.4)	226 (100)	
Laboratory technician	39 (17.3)	48 (21.2)	139 (61.5)	226 (100)	
Pharmacist	27 (11.9)	40 (17.7)	159 (70.4)	226 (100)	
Supporting staff	40 (17.7)	95 (42.0)	91 (40.3)	226 (100)	
Service provider	Opportunity given by service providers to openly explain their problems				
	Not at all	Partially	Fully	Total	P value
	Doctor	2 (0.9)	10 (4.4)	214 (94.7)	226 (100)
Staff nurse	36 (15.9)	58 (25.7)	132 (58.4)	226 (100)	
Service provider	Support given about necessity of treatment, laboratory tests, and its cost				
	Not at all	Partially	Fully	Total	P value
	Doctor	24 (10.6)	28 (12.4)	174 (77)	226 (100)
Laboratory technician	214 (94.6)	6 (2.7)	6 (2.7)	226 (100)	
Service provider	Maintenance of confidentiality and privacy during history taking				
	Not at all	Partially	Total	P value	
	Doctor	184 (81.4)	42 (18.6)	226 (100)	0.001*
Staff nurse	208 (92.0)	18 (8.0)	226 (100)		
Service provider	Confidentiality and privacy maintained during the examination				
	Not at all	Partially	Fully	Total	P value
	Doctor	47 (20.7)	74 (32.8)	105 (46.5)	226 (100)
Staff nurse	156 (69.0)	44 (19.5)	26 (11.5)	226 (100)	

Figures in parentheses indicate percentage. * $P < 0.01$ shows statistically highly significant

Table 5: Expectation of respondents about various services at health-care facility before utilization (n=226)

Perceived expectation	Not good	Acceptable	Excellent	Total	P value
Health-care facility					
Support of service providers	8 (3.5)	72 (31.9)	146 (64.6)	226 (100)	0.001*
Hospital equipment cleanliness	14 (6.2)	74 (32.7)	138 (61.1)	226 (100)	
Supply of medicines	64 (28.3)	127 (56.2)	35 (15.5)	226 (100)	

Figures in parentheses indicate percentage. * $P < 0.01$ shows statistically highly significant

Strengths and Limitations

A statistical approach; factor analysis was used to determine services quality dimensions and constructed new factors affecting the quality of MCH care services availed by the beneficiaries. Furthermore, both Bartlett's test of sphericity and the KMO measure of sampling adequacy tests were used to determine the appropriateness and factorability of the matrix.

As the study was conducted in only one secondary level of health-care facility; hence, findings could not be generalized and gray areas to be addressed at tertiary and primary health-care facilities.

Recommendations

Behavior of health-care service providers should be taken care of and health-care providers should ensure attentively

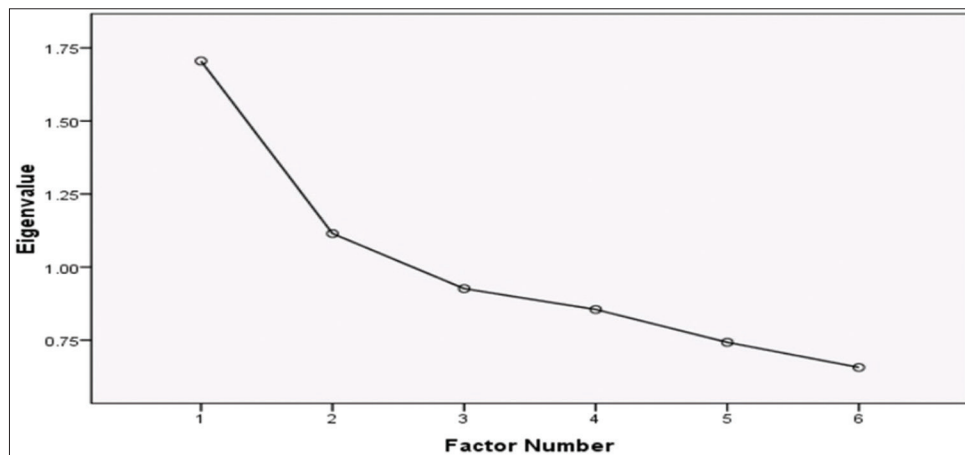


Figure 1: Scree plot for the number of the components against eigenvalues

Table 6: Socio-demographic attributes of study participants

Attribute	Study participants n (%)
Age of respondents (n=226)	
<20 years	16 (7.1)
20–24 years	99 (43.8)
25–29 years	63 (27.9)
30 years and above	48 (21.2)
Age of children accompanied respondents (n=101)	
<6 months	51 (50.5)
7–24 months	17 (16.8)
25–60 months	33 (32.7)
Sex of children accompanied respondents (n=101)	
Male	58 (57.4)
Female	43 (42.6)
Socio-economic status (n=226)	
Upper	17 (7.5)
Upper middle	34 (15.0)
Lower middle	67 (29.6)
Upper lower	76 (33.6)
Lower	32 (14.2)
Parity (n=226)	
Nulliparous	58 (25.7)
Primiparous	71 (31.4)
Multiparous	97 (42.9)

Figures in parentheses indicate percentage

listens to the problems of the beneficiaries and give them opportunity to tell their health-related problems and address those issues. Provision of regular assessment of health-care services needs to be ensured. There should be provision of help-desk for the beneficiaries availing MCH care services.

CONCLUSION

Services quality dimensions related to MCH care provided to beneficiaries concluded as health-care provider's

characteristics, expectations of beneficiaries toward health-care services, support, and help by supporting staff such as Yashoda, and Class IV employees/Sweepers from this study.

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