ASSESSMENT OF THE INPUTS ASPECT OF THE QUALITY OF HOSPITAL CARE IN TIANJIN FIRST CENTRAL HOSPITAL (TFCH), TIANJIN, CHINA BY INPATIENTS

Noor Ahmad Khan, Hamdija Ramie, Liu Bing, Li Jianguo

This descriptive cross sectional study on the users' assessment of the structural aspect of quality' of care has been conducted from 4th May to 6h June]996, in TFC hospital, Tianjin.
The objective was to assess the structural aspect of quality of care by users' point of view and to identify possible areas of intervention for its improvement. Stratified multistage sampling was used and face to face interviews with 181 users in In-Patients Departments (IPD) were conducted. Using Donabedian 's classification of quality the structural/ inputs aspect of quality was assessed through the dependent and independent variables of quality.
The results revealed that 82 % of the users were within 20hn distance from the hospital. A total of 74% term reaching to the hospital as convenient and expenditure not so high (71.8%). An overwhelming majority term the hospitalization as easy (90.4%), cleanliness good (94.9 %) and drugs available (92.7%). A total of 93.2% term the services received worth the money paid.

Key words: - Users, Inpatients, Quality Assessment, Hospital Care.

INTRODUCTION

In many countries a greater part of the health budget is committed to curative services but, the dissatisfaction of the consumers is growing and the quality of these services remains questionable[1]-[2]. Thus, studies of the quality of care are increasing in importance as a component of health care[3]. In developing countries, quality related studies are relatively new challenges[4].

This study on the Users' Assessment of the "inputs aspect of the quality of care" was conducted during 1996 in Tianjin First Central Hospital (TFCH), Tianjin, China. The quality of care in hospital was assessed from the users point of view[3]-[3,6], because surveys of patients can be very valuable in identifying problems both in technical quality and in patient satisfaction[7] and can provide vital information relevant for the policy makers, health managers, service providers[4] and the health service users themselves[1].

The study objectives were: to determine users' ability of health care quality assessment; to identify good or bad quality components of the hospital & their reasons and to identify areas & ways of intervention for the quality of care improvement. The study was conducted both in in-patients and outpatients departments (IPDs & OPDs) of the TFCH All aspects of quality inputs, process & outcome were studied. However, in this paper the users' assessment of the inputs/ structural aspect of quality of care only in IPDs is presented.

Noor Ahmad Khan. Asstt. Professor, Community Medicine. Ayub Medical College, Abbottabad, Pakistan.
Hamdija Ramie, Professor, Health Planning & Mgt. Inst. Of Trop. Hyg. & Public Health, Heidelberg University, Germany.
Liu Bing, Professor & President, Tianjin First Central Hospital, Tianjin. P.R. of China
Li Jianguo, Director Public Health Bureau. Tianjin, P.R. of China

MATERIALS AND METHODS

This hospital based descriptive cross sectional study was carried out from 4th May to 30th June 1996 in 23 storied TFCH, which is one of the biggest hospitals in the country, has 766 beds and approximately 40 different service departments. It is located in Tianjin, the 3rd biggest city, industrial & commercial center in China and at a 150 Km distance from Beijing. In China the hospitals receive 25% (further reduced recently) of its budget from the government for wages only and the remaining costs have to be generated by the hospitals.

Quantitative methods with close ended questionnaire and face to face interviews were used to conduct the study. All patients in the in-patient departments were our study population. Multi-stage sampling technique was used to define the study sample. In the first stage all patients study population was divided into 2 stratas i.e. Strata of indoor patients and Strata of out-door patients. In the 2nd stage only five departments (as the authorities advised to restrict to them) from IPDs were selected as sub-stratas. In the 3rd stage simple random sampling technique was used and only those patients were interviewed who were going to be discharged or those who had stayed for at least one week in the hospital. From each department daily 3-4 interviews were conducted for 11 days thus a total of 181 interviews were conducted (47 from general surgery, 36 each from

cardiology & emergency medicine, 33 from ENT and 29 from traditional Chinese medicine).

Host staff/ nurses were used to conduct interviews. The interviewers conducted interviews in the department other than their own in order to conceal their identity from patients. The questionnaires were designed in a manner to make sure that the questions are asked exactly in the same way from every respondent. Trial interviews and pretesting of the questionnaire was done in the same hospital, with the same study population through the same interviewers. Theoretical and practical training was also given to the interviewers. Feedback and necessary guidance and corrective advises were given through continuous supervision during the actual study process. Measures for data cleansing, validation and removing possible sources of bias were made before starting the study and during and after the actual data collection process. EPIINFO version 5 was used to analyze the data.

Age & sex distribution of the respondents (table-1) and the education status were recorded. The population of 15-year age and below were not included in the study because of their less likeliness had to be able to assess the quality of care or answer certain questions.

The quality of care is an outcome of interactions of several factors (multifactorial). These factors are grouped into structural, process and outcome factors (categories)[1254]. From these three categories, inferences can be drawn about the quality of care. In this paper only inputs/ structural part is presented. Structure denotes the attributes of setting in which care occurs. This includes the attributes of material resources, human resources and organizational 'structure[12]. Different variables of inputs/ structural aspect of quality were constructed (table-4 & 5) to see the geographic, spatial & financial accessibility to services and the availability of services i.e. getting to be hospitalised, hospital cleanliness, and availability of drugs. The availability of staff, canteen, latrine, water & electricity was also recorded.

RESULTS

In our study 17.1% of the respondents were the patients' attendants and 2.2% were non respondents. The reason for not accepting to be interviewed was given as the non-availability of time and privacy. Most of the attendants' relation to the patients was as son/ daughter 43.8%, the remaining were wife 25%, husband 15.6%, mother 6.3%, father 3.1% and others (friends etc.) 6.3%. Age & sex distribution of the respondents is shown in table 1.

The distribution of males and females by age groups was largely comparable (table 1)

(p=0.9398). Among the respondents 2.2% were illiterate, 13.4% upto 6th grade, 54.3% 7th to 12th grade, 28.5% graduate and 0.6% were having postgraduate qualification.

Distance from the hospital and the mode of transport to the hospital is shown in the table-2&3. A total of 55.9% persons spent less than 30 minutes, 36.7% spent 30 minutes to 2 hours and 7.3% spent more than 2 hours to reach the hospital. Of them 59.9% perceive this time as not too long, 25.1% term it as too long and according to 26% it is short. Of the respondents 21.16% spent nothing, 20.5% spent unto 10 Yuan*, 50.6% more than 10 to 30 Yuan and 7.4% spent more than 30 Yuan to reach to the hospital.

Table-4 shows the views of the patients on getting to be hospitalised, money spent on reaching to the hospital, money spent to receive the services, the cleanliness and sanitation of the hospital in general, the corridors, the wards and the bedding, about the toilets and about the building's repair status. Of the respondents 75.1% of the

respondents perceived the area around the building as totally free from rubbish, wastes, puddles etc., according to 14.1% said partially free and 10.7% had not given attention to this.

Users' views on the availability of published information, sign boards etc., drugs, baths/ showers, toilets, drinking water, electricity, food, ambulance, dustbins, canteen and the

availability of staff (cleaners, watchmen, bearers, professionals) is shown in table-5.

About the overcrowding of patients / beds in a room 14.1% said yes there are too many beds in one room (the rooms are overcrowded), 79.1% said no, 6.8% said other. About the time of food distribution 81.7% said it is very convenient, 17.1% said not so convenient and 1.2% said inconvenient. For 24.1% respondent's food was expensive, for 66.3% not so expensive and for 9.6% persons cheap. 79.5% said it is good quality, for 20.5% not so good. About food hygiene 92.9% said good, the remaining said not so good and poor. According to 4.1% they paid upto 1000 Yuan for the hospital services, 51.7% paid 1000 to 5000 Yuan, 27.3% paid 5 to 10,000 Yuan and 16.9% paid more than 10000 Yuan.

Only 11.9% respondents felt some barrier in coming to hospital while 84.2% did not face any and 4% did not respond. The barriers mentioned were: inconvenient distance (17 times) and high cost, bad behavior of the staff and non-availability of specialized services one time each.

A total of 61.9% categorized the quality of care as very good while around 38.1% termed it as somehow good while no body termed it as poor quality. Among the respondents 51.1% expressed great satisfaction while the remaining 44.9% said somehow & 4% were not satisfied.

Users gave recommendations for the improvement of the quality of care of the hospital. These were in order of their score; 70 respondents asked to provide toilets & baths, 36 to improve staff qualification, 23 to decrease cost, 20 to provide transport, 15 for improving staff behavior, 12 for more & better equipment, 8 to provide waiting place, 7 to provide more medicine, 1 to increase number of staff, 30 respondents asked for other things and 12 said do not know. Only 6.7% persons did not give any recommendation for

the quality improvement of the hospital. A total of 97.7% respondents said that they would recommend this hospital to other people while the remaining said no.

TABLE-1: AGE & SEX DISTRIBUTION OF THE RESPONDENTS

Age (years)	Male No. %		Female No. %		Total No. %	
> 15 to 25	9	9	5	6.4	14	7.8
> 25 to 40	30	29.7	24	30.8	54	30.2
> 40 to 60	40	39.6	31	39.7	71	39.7
> 60 years age	22	21.7	18	23.1	40	22.3
Total	101	100	78	too	179	100

TABLE-2: DISTANCE OF PATIENTS FROM THE HOSPITAL

Distance from the hospital	Number of patients	%
< 5km	45	25.4
5-20km	-103	57.4
> 20km	31	17.2
Total	179	100

TABLE-3: MODE OF TRANSPORT OF PATIENTS TO THE HOSPITAL

Mode of transport	Number	%
Taxi	107	59.9
Bus	23	13
Car	22	12.4
Other	14	7.9
Walk	7	4
Cycle	4 '	2.2
Train	1	0.6
Total	**178**	**100**

DISCUSSION

Some basic information regarding the respondents' variables were made part of the study instruments. These were the category of the respondents (patient or attendant), sex, age, marital status, education level, occupation of the respondent and the length of stay in hospital.

These variables are considered important as recommended by some researchers[3,8]. In the case of frail patients who were not able to respond to the questions, close relatives / attendants were taken as proxy respondents[9]. In our study 17 % of the respondents were the attendants of the patients.

While age is considered significantly important in such type of studies. Other socioeconomic variables like sex, education, marital status & occupation etc. are not considered significantly associated but can reveal some inferences[3]. In our study more than half respondents i.e. 58.6% were above the age of 40 years and only 31.8% were of graduate and post-graduate qualification which in our study seems to have contributed towards the assessment of different components of hospital care as high quality by the respondents but no difference of statistical significance was found. Some studies have indicated and reported that older age people tend to be more satisfied from the services[3,8] and the more educated less satisfied[8]. The omitted category of age in our study is 15 years and below because this age group is less likely to be able to assess the quality of care or answer certain questions.

In this study it was found that out of 177 respondents, over 70% reported the length of stay in the hospital as 15 & more than 15 days (62% out of them had a stay longer than 21 days) and this percentage would had been higher if the interviews were conducted only on the day or one day before the discharge. On the other hand, only 16 i.e. 9 % respondents had a stay of less than 7 days. These findings are similar to the findings of another researcher[10], who has mentioned that the average length of stay in Chinese hospitals is very high, 3 times more than United States. This can result into rampant inefficiency.

A total of 97.7% said that they, would recommend the hospital to other people. Our results contradict the findings of another study that say, very few comments were made on how to improve the quality of care". The most frequently given recommendations of the respondents for the improvement of the quality of care in TFCH were; more baths, toilets & common facilities /waiting places etc. (186 times), improve staff qualification (88 times), (79 times), decrease cost (46 times) and improve staff behavior (38 times). Keeping in view the above findings we can say that the respondents are able to assess the quality of hospital care and are able to put recommendations for its improvement.

We in our study have kept under consideration all aspects of the quality attributes i.e. accessibility (geographic, spatial, financial etc.) physical infra-structure & cleanliness, material, facilities, staff, services, nutrition etc. All these are important prerequisites for quality[4,12].

Of the respondents 62% were above the age of 40 years and 70.9% were undergraduate which apparently have contributed towards users' assessment of different components of hospital care as high quality but statistically insignificant. Some studies have reported that the less educated and the older age people tend to be more satisfied from the services[3,8].

With regard to distance the study reveals TFCH provide facilities mostly to the nearby population and that the catchment area is small. These results agree with the results of the Ethiopian study[1'] where over 70% patients were the nearby city population. Although greater accessibility is

usually associated with better quality but it could also lead to redundant, harmful or unnecessary costly care[14]. A total of 74% users term reaching to the hospital as convenient and only 1.7% say it difficult. Spatial & financial accessibility is also considered as important variables for the assessment of the quality of care[7]. In this study it was found that 85.9% perceive the time to reach the hospital as short or not too long.

Only 11.9% reported, they feel some sort of barrier in coming to the hospital. The barriers mentioned were, non-availability of specialized services, bad quality of care, staff behavior bad, high charges, difficulty in admission, inconvenient distance and waiting time etc. It could be concluded that an overwhelming majority did not feel any barrier in coming to the hospital.

About overall & specific departments' cleanliness and the repair status of the building 75 to 100% termed them good. About the availability of drugs and materials, almost 100% expressed their satisfaction. In the same way about the availability of canteen & food (quantity, quality, hygiene), professional and nonprofessional staff, services, drugs and materials, drinking water and electric supply, almost close to 100% respondents replied in positive and expressed their satisfaction. The only areas in that the patients did not show high level of satisfaction were the number of bathrooms, availability of bearers and published information about the hospital. All these are considered as important prerequisites of quality[4,12,15] & these are similar to the results of Cartwright's study where it was found that food, the physical surrounding etc. received favorable comments and only 20% were critical[3]. The high level of satisfaction due to these factors may be one reason that in our study a very high frequency of respondents has categorized the quality of health care in TFCH as very good. Good, adequate infrastructure & availability of basic resources and skilled manpower are considered important for good quality of care. Their presence or absence influence the outcome and the users' satisfaction and dis-satisfaction with the services. Our above findings are similar to the studies done by others[12] e.g. satisfaction depends on the type of institution.

The respondents overwhelmingly (93.2%) said that the service received was worth the money paid (95% spent more than 1,000 Yuan). These results are similar to another study that monetary cost for health in China is very high.[10]

A total of 61.9% respondents categorized the quality of care in hospital very good, 38.1% termed it somehow good and no body termed it bad. This strong minority of neutral responses (somehow good) is thought provoking and may reflect dissatisfaction. The attitude of such classic responses is one of the resignation often associated with a feeling of not being able to do anything about a situation even though one may feel dissatisfied. In Japan and other East Asian countries this resignation or acceptance is a common way to deal with dissatisfaction in many other aspects of life". In the context of this study it has been noted that such responses were rather more common and predominant which certain interviewers had also observed and reported.

Concerning the length of stay in the hospital our findings are similar to another study[10] where the average length of stay in Chinese hospitals was found to be very high, three times more than United States.

In contradiction to a study that very few comments were made on how to improve the quality of care[11], in our situation the respondents did put forward some recommendations. Keeping in view this aspect we can say that the respondents were able to assess the quality of hospital care and put recommendations for improvement.

CONCLUSIONS

The users in TFCH were able to assess the quality of hospital care and were able to express their views. The length of stay in TFCH on the average is very high and almost all users of the hospital are from the urban population. Apparently most of the respondents expressed satisfaction about the accessibility to the services, cleanliness and the availability of staff (professional & nonprofessional), services, drugs, supplies, food (quality, quantity, hygiene), water & electricity etc. The time spent for receiving the services was assessed as appropriate.

The most frequent expenditure was first for drugs and second for lab. examination. Dissatisfaction was showed over the availability of bathrooms, toilets, bearers and published

information about the hospital. Some expressed dissatisfaction due to the high cost. Since the present study has been undertaken in urban areas, the findings can be generalized to the urban population only. The views of users in rural populations may be examined/ studied in future.

TABLE-4: USERS' VIEWS ON THE VARIABLES RELATED TO THE STRUCTURAL (INPUTS) ASPECTS OF QUALITY (GEOGRAPHIC, SPATIAL & FINANCIAL ACCESSIBILITY ETC.)

Variables of Quality	Categories for ranking users' views
Users perception about:	
1- Time to reach the hospital	Too long (25.1 %) - Not too long (59.9 %) - all right (26 %)
2- Reaching to the hospital	Convenient (74%) - Not so convenient (24.3%) - Difficult (1.7%)
3- Getting to be hospitalized	Easily (90.4%) - with difficulty (0.5%) - Don't know (4.5%)
4- Hospital cleanliness in general.	Good (94.9%) - Not so good (5.1%) - Poor (Nil)
5- Toilets' cleanliness	Good (75.1 %) - Not so good (20.9%) - Poor (4%)
6- Corridors' cleanliness	Good (97.7%) - Not so good (1.7%) - Poor (0.6%)
7- Wards' cleanliness	Good (95.5%) - Not so good (4.5%) - Poor (Nil)
8- Linen's cleanliness	Good (96%) - Not so good (4%) - Poor (Nil)
9- Bedding cleanliness	Good (98.3%) - Not so good (1.7%) - Poor (Nil)
10-Money spent to reach the hospital	High (8.1%)- Not so high (71.8%)- Low (20.1%)
11-Money spent in receiving the services	Worth the service (93.2%)- Not (1.7%)- Do not Know (5.1 %)
12-Maintenance & repair status of the building	Good (91.5%) - Not so good (7.3%) - Poor (1.1%)

TABLE-5: USERS' VIEWS ON THE VARIABLES RELATED TO THE STRUCTURAL (INPUTS) ASPECTS OF QUALITY (AVAILABILITY OF STAFF, DRUGS, INFORMATION, SPACE, UTILITIES ETC.)

Variables of Quality	Categories for ranking users' views
Users perception about:	
1- Sign posts/ boards	Sufficient - Not sufficient - Do not Know 86.4% 9.6% 4%
2- Published information	Sufficient - Not sufficient - Do not Know 39.5% 37.3% 23.2%
3- Drugs	Sufficient - Not sufficient - Do not Know 92.7% 7.3% Nil
4- Baths/ showers	Sufficient - Not sufficient - Do not Know- 15.8% 66.7% 17.5%
5- Toilets	Sufficient - Not sufficient - Do not Know 88.7% 6.8% 4.5%
6- Drinking water	Sufficient - Not sufficient - Do not Know 96.6% 2.3% 1.2%
7- Electric supply (load shading)	Never - Not so often - Often 96% 1.2% 2.8%
8- Food	Sufficient - Not sufficient - Do not use 45.2% 0.6% 54.2%
9- Ambulance	Sufficient - Not sufficient - Do not Know 93% 0.9% 6.1%
10- Dustbins	Sufficient - Not sufficient - Do not Know 96.6% 3.4% Nil
11- Canteen	Available - Not available - Do not Know 99% 0.5% 0.5%
12- Staff professional	Sufficient - Not sufficient - Do not Know 77.4% 10.7% 11.9%
13- Cleaners	Sufficient - Not sufficient - Do not Know 99.4% 0.6% > Nil
14- Watchmen	Sufficient - Not sufficient - Do not Know 92.1% 1.7% 6.2%
15- Bearers	Sufficient - Not sufficient - Do not Know 17.5% 63.8% 18.6%

ACKNOWLEDGMENTS

The study was funded by German Academic Exchange Program (DAAD). The technical support was provided by Dr. Bile, MK. WHO Medical Officer on PHC, Islamabad.

REFERENCES

1. Kisimbo, T.D., "Assessment of Quality of Care in Peripheral Health Units of Kabarole District, Uganda". Sc Thesis, 1994 (unpublished manuscript)
2. Buve, A. & Foster, S., "Carrying out a Bed Census at a District Hospital in Zambia". Health Policy and Planning, 1995:10(4): 441-445. Oxford Univ. Press.
3. Locker, D. & Dunnt, D. "Theoretical and Methodological Issues in Sociological Studies of Consumer Satisf. with Medical Care". Soc. Sci. & Med. 1978; vol.12
4. Roemer, M.1. & Montoya, A. "Quality Assessment and Assurance in PHC". WHO offset publication No 105, WHO- Geneva, 1988.
5. Micheal, W., et al. "Quality Judgment by Patients on General Practice Care: A Literature Analysis". Soc. Sci. Med. 1994: Vol 38. No.l.
6. Kemprecos, L.F. et al.' The Measurement of Patient Satis in Health Care Services, A Practical Guide" A publication of HEALTHCOM Project of USAID, 4/1995.
7. WHO. "The Principles of Quality Assessment". Report on a WHO Meeting Barcelona. 17-19 May 1983.
8. Lewis, J., "Patients Views on Quality Care in General Practice": Literature Review. Soc. Sc. Med. 1994; Vol.39, No.5.
9. Panarunothai, S., "How to do (or not to do)? The bed Census Survey: a tool for studying hospitals in-patient services. Health Policy & Planning; 10 (4): 438-440, 1995.
10. William, C.L. Hsiao. "The Chinese Health Care System". Social Sci. & Med. 1995; Vol. 41. No.8: pp-1047-1055.
11. Kurata, J. et. el., "A Comparative Study of Patient Satisfaction with Health Care in Japan & the U.S.A.", Soc. Sc. Me. 1994; Vol.39. No.8, pp-1069-1076.
12. Vouri, H.V. "Quality Assurance of Health Services: Concepts a Methodology". Public Health in Europe, WHO Regional office for Europe Copenhagen, 1988. Vol 16
13. Meche, H. et. al., "Reaching the People, some issues in the Utilization of selected Hospitals in Addis Ababa", Ethiopian Journal Health Development, 1984; 1.
14. Donabedian, A., "The Quality of Care, how it can be assessed", JAMA, Sept.23/30, 1988, Vol 260. No. 12.
15. Vera, H. "The Client's View of High Quality Care in Santiago, Chile", Studies in Family Planning, 1992.