

Health-care quality from patients' perspective: A cross-sectional study at anti-rabies clinic of a tertiary care center, Bengaluru

Vanitha B, Ramakrishna Reddy, Ranganath T S, Anil Kumar, Vishwanatha V N

Department of Community Medicine, Bangalore Medical College and Research Institute, Bengaluru, India

Correspondence to: Vanitha B, E-mail: vanisonu1510@gmail.com

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ABSTRACT

Background: Rabies is a highly fatal viral disease, yet preventable through timely administration of post-exposure prophylaxis (PEP). Anti-rabies clinic (ARC) plays an important role in providing PEP. Evaluation is a systematic way to improve current activities and by careful selection of alternative ways for better planning of future. **Objective:** The study was done with the intention to identify the gaps in the patients' care in terms of patient satisfaction at ARC of a tertiary care center, Bengaluru. **Materials and Methods:** A cross-sectional study was conducted among 260 animal bite victims who visited outpatient department of ARC. The study tool comprised three sections; socio-demographic profile, details of animal bite, and patient satisfaction scale (PS-18) which was scored using 5-point Likert scale. *T*-test, analysis of variance and Pearson's correlation was used to assess the relationship between quality dimensions and PS-18 scores. **Results:** The mean age of the study participants was 37.33 (17.71) years and majority were males. The overall mean score of PS-18 was 4.15 (0.42). The highest and lowest mean scores of PS-18 among the components were given to communication, 4.36 (0.61) and accessibility, 3.56 (0.75), respectively. There was significant association between religion, frequency of visit, category of bite, and cost incurred with mean scores of PS-18. Out of 260, about 62.7% of them gave good scoring for PS-18. **Conclusions:** The study findings showed that more than half of the patients visiting the outpatient department shared a positive experience. Although the mean scores for overall PS-18 scale belonged to the grade of good scoring; due interest to be taken to improve accessibility and convenience which was the least scored among the components of PS-18.

KEY WORDS: Evaluation; Anti-rabies Clinic; Patient Perspective; Health-care Quality


INTRODUCTION

Rabies, also known as hydrophobia, is an acute, highly fatal viral disease, yet preventable.^[1] It is transmitted to people by bite or scratch of a rabid animal.^[2] This viral disease occurs in more than 150 countries and territories mostly in Asia and Africa. Around the world 50–70 thousands of deaths occur due to rabies. Dogs are the main source of human rabies deaths,

contributing up to 99% of all rabies transmissions to humans. Rabies is 100% preventable through timely administration of post-exposure prophylaxis (PEP) to bite victims; however, fatalities still occur in many endemic countries.^[3,4]

PEP prevents virus entry into the central nervous system, which results in imminent death. PEP consists of, extensive washing and local treatment of the wound as soon as possible after exposure; a course of potent and effective rabies vaccine; and the administration of rabies immunoglobulin (RIG), if indicated. Effective treatment soon after exposure to rabies can prevent the occurrence of disease and death.^[3,5]

Health-care service delivery systems should be safe, accessible, high quality, people-centered, and integrated for moving toward universal health coverage. Health-care

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systems are responsible for providing health services for patients, families, communities, and populations in general, being people-centered. Service delivery systems should also consider the whole spectrum of care from promotion and prevention to diagnostics, rehabilitation, and palliative care.^[6] Anti-rabies clinic (ARC) plays an important role in primary and secondary prevention of rabies by providing both pre and PEP.

Evaluation is a systematic way of learning from experiences to improve current activities and promote better planning by careful selection of alternatives for future action. It is the periodic assessment of the health-care services aims to ascertain attainment of set objectives. It is a measure of effectiveness that highlights the extent to which services are provided. It focusses on the relevance, effectiveness, efficiency, and sustainability of health-care services.^[7,8]

The iron triangle of health care includes: Accessibility, cost, and quality of health-care service.^[9] The adequacy of the three qualities is determined by patient himself. Patient satisfaction has emerged as a critical outcome and to be considered for evaluation of health services. ARC in our tertiary care center was started in 2015 with the aim of providing primary and secondary prevention to the at-risk individuals by both active and passive immunization (vaccines and immunoglobulins). The objective of the study is to evaluate health services quality from patient's perspective at ARC of a tertiary care center, Bengaluru and to assess the relationship between determinants and satisfaction of health-care services.

MATERIALS AND METHODS

A cross-sectional study was conducted during the period of January 2019–April 2019 at ARC of a tertiary care center, Bengaluru. Permission was obtained from Institutional Ethics Committee of Bengaluru Medical College and Research Institute (BMCRI) and Medical Officer in-charge of ARC. ARC is attached to teaching hospital of BMCRI. The outpatient department (OPD) runs all the days in a week along with casualty services. Animal bite cases attending ARC OPD were selected for the study. Patients will be new cases who would have visited the ARC 1st time for treatment of the wound or follow-up cases for anti-rabies vaccination (ARV) or referred cases for RIG ARS. Wounds are treated based on Category II (scratch of animal) and Category III (bite of animal) with ARV or ARV and ARS, respectively.

According to a study conducted by Moghaddam *et al.*^[10] the mean and standard deviation (SD) of accessibility component of patient satisfaction scale was 3.23 (0.82). Considering precision of 0.1 and 95% confidence limits, sample size was calculated to be 260. Animal bite cases who gave consent were selected consecutively limiting participant numbers to 10/day

in all the days of a week ensuring a representative sampling of busy and non-busy working days. Patients attending casualty services were excluded from the study. Since the perception of quality is subjective, to reduce the bias patients <18 years old were excluded from the study.

The study tool comprised three sections, socio-demographic profile, details of an animal bite, and patient satisfaction scale (PS-18). Socio-economic status was assessed using BG Prasad's Classification as both the rural and urban class of patients attended the clinic.^[11] PS-18 is a validated questionnaire used to assess patient satisfaction of health services touching on seven components which form the basis. It has 18 questions related to the following seven components: Accessibility and convenience, communication, financial aspects, general satisfaction, interpersonal manner, technical quality, and time spent with the doctor.^[12,13] The items were measured on a five-point Likert scale ranging from one (Strongly Disagree) to five (Strongly Agree) and vice-versa for negative questions which were scored accordingly. Time of entry, time of exit, and cost incurred were also included in the study tool.

Data were collected using interview technique by asking questions in the local language through trained residents of the OPD. Google forms were used to capture the data and were transferred to MS Excel and coded. Statistical software SPSS V23.0 was used to analyze the data and interpret the results. Mean and SD were used to express the scoring. *T*-test, analysis of variance (ANOVA), and Pearson's correlation test were used to assess the relationship between various determinants and satisfaction of health-care services. In addition, Friedman test was used to assess the ranking between components of PSQ-18. Regarding the mean score, the overall service quality was divided into three levels; poor (<2.5), moderate (2. 6–3.75), and good (>3.75).

RESULTS

According to the study, findings mean age of the study participants was 27.33 (17.71) years. More than half of the participants were male, 145 (55.7%) and 153 (58.8%) belonged to Hindu religion.

Majority were graduates (43.8%) in skilled/semi-skilled (51.2%) occupation. Majority of the participants belonged to Class I, 89 (34.2%) of BG Prasad's socio-economic classification. About half of the study participants were there for their first visit, 126 (48.4%). Table 1 shows the demographic details of the participants.

Regarding details of an animal bite, 128 (49.2%) were new cases and 44 (16.9%) were referred for RIG. About 178 (68.5%) of the animal bites were dog bite cases and 24 (9.2%) were bites of other animals such as bear and

monkey. More than half of them were Category III animal bite cases, 152 (58.5%). The lower limb was the most common site of animal bite, 119 (45.8%) among the study participants. Table 2 shows details of animal bite among the study participants.

The waiting time estimated for the animal bite cases who visited the ARC ranges from 10 min to 120 min with a mean of 22.0 (10.2) min. The mean of cost incurred on the treatment along with travel expenses ranged from Rs. 90 to Rs. 950 with a mean of Rs. 368 (115.8). Table 3 shows mean of age of the animal bite victims, estimated waiting time, and cost incurred.

The patient satisfaction scale scoring was calculated for all the individual components along with overall scoring and deriving it to an average. Thus, the scoring ranged from 1 to 5. The

Table 1: Socio-demographic details of participants with mean scores of patient satisfaction scale-18

Variables	n (%)	Mean (SD)	Test results
Gender			$t=0.843^{\#}, P=0.404$
Male	145 (55.8)	4.19 (0.42)	
Female	115 (44.2)	4.08 (0.39)	
Religion			$F=2.866^{\wedge}, P=0.028^*$
Hindu	153 (58.8)	3.63 (0.79)	
Muslim	87 (33.4)	4.49 (0.49)	
Christian	20 (6.8)	3.89 (0.29)	
Education			$F=0.211, P=0.88$
Postgraduate	67 (25.7)	4.20 (0.28)	
Graduate or diploma	114 (43.8)	4.16 (0.49)	
Schooling	60 (23.2)	4.13 (0.45)	
Illiterate	19 (7.3)	3.98 (0.24)	
Occupation			$F=0.808^{\wedge}, P=0.528$
Professionals	101 (38.8)	4.26 (0.42)	
Skilled and semi-skilled	133 (51.2)	4.29 (0.44)	
Elementary occupation	14 (5.3)	4.08 (0.10)	
Unemployed	12 (4.6)	4.30 (0.45)	
Socio-economic status			$F=1.673^{\wedge}, P=0.189$
Class I	89 (34.2)	4.32 (0.48)	
Class II	79 (30.4)	3.98 (0.34)	
Class III	48 (18.5)	4.08 (0.40)	
Class IV	28 (10.8)	3.92 (0.35)	
Class V	16 (6.1)	4.19 (0.11)	
Frequency of visit			$F=3.148^{\wedge}, P=0.032^*$
First	126 (48.4)	4.39 (0.08)	
Second	56 (21.6)	3.41 (0.35)	
Third and above	78 (30.0)	4.29 (0.55)	

*Statistically significant, [#]Independent *t*-test, [^]ANOVA test. ANOVA: Analysis of variance, SD: Standard deviation

mean of overall average scoring was 4.15 (0.42) which is good scoring. The highest mean score among the various components of the scale was given to communication, 4.36 (0.61) followed by general satisfaction with a mean score of 4.29 (0.67) both under the category of good scoring. The least mean scoring among the components was 3.56 (0.75) given to accessibility and convenience which is under the category of moderate scoring. Furthermore, time spent with doctor was given the second least mean scoring of 3.65 (0.95) which falls under moderate grading.

The average scoring was tested for statistically significant association with various demographic details of the animal bite cases using *t*-test and ANOVA. There was significant association found between religion and frequency of visit with average scoring of PS-18 ($P < 0.05$). With regard to details of animal bite, there was also significant association between categories of bite with mean scoring of PS-18. Tables 1 and 2 show association between demographic details and details of animal bite with PS-18 mean scores.

The correlation between the mean of age of the study participants estimated waiting time and cost incurred with mean scoring of PS-18 was calculated. There was significant negative correlation between cost incurred and average scoring of patient satisfaction scale. Table 3 shows correlation between age, waiting time, and cost incurred with PS-18 scores.

Out of 260, majority 163 (62.7%) of them gave good scoring of >3.75, 82 (31.5%) of them gave moderate scoring

Table 2: Details of animal bite with mean scores of patient satisfaction scale-18

Variables	n (%)	Mean (SD)	Test results
Type of case			$F=0.222^{\wedge}, P=0.802$
New case	128 (49.2)	4.14 (0.41)	
Follow-up of ARV	88 (33.9)	4.13 (0.41)	
Referred for RIG	44 (16.9)	4.26 (0.49)	
Biting animal			$F=0.001^{\wedge}, P=0.995$
Dog	178 (68.5)	4.15 (0.43)	
Cat	58 (22.3)	4.15 (0.34)	
Others	24 (9.2)	4.15 (0.41)	
Category of Wound			$t=2.845^{\#}, P=0.003^*$
Category II	108 (41.5)	3.47 (0.39)	
Category III	152 (58.5)	4.19 (0.42)	
Site of wound			$F=0.499^{\wedge}, P=0.685$
Head and neck	24 (9.2)	4.05 (0.62)	
Trunk	15 (5.8)	4.35 (0.039)	
Upper limb	102 (39.2)	4.08 (0.39)	
Lower limb	119 (45.8)	4.21 (0.42)	

*Statistically significant, [^]ANOVA, [#]Independent *t*-test. ARV: Anti-rabies vaccination, RIG: Rabies immunoglobulin, SD: Standard deviation

Table 3: Relationship between age, waiting time, and cost incurred with mean scores of patient satisfaction scale-18

Variables	Mean (SD)	Correlation coefficient (<i>r</i>)	<i>P</i>
Age	27.33 (17.7)	-0.168	0.286
Waiting time (min)	22.0 (10.2)	0.051	0.748
Cost incurred (Rs.)	368.93 (115.8)	-0.123	0.043*

*Statistically significant. *r*=Pearson's correlation coefficient, SD: Standard deviation

of 2.5–3.75, and 15 (5.7%) of them gave poor scoring <2.5. Furthermore, according to Friedman test, communication and general satisfaction were among the highest ranked and accessibility and convenience the least. Table 4 shows mean ranking of the components of scale according to Friedman test.

DISCUSSION

The study aimed to evaluate health-care services quality from patient's perspective and its association with various determinants of animal bite cases in ARC of a tertiary care setup. In our study, the overall mean scoring of PS-18 was 4.15 (0.42). There was significant association between religion, frequency of visit, category of wound, and the cost incurred with the average scoring. Among the components of the patient satisfaction scale, communication was highest ranked and accessibility and convenience were least ranked. As noted, accessibility and convenience will always be a problem in a tertiary care government setup. About 62.7% of the individuals scored good for the overall health-care service quality.

Bedi *et al.*^[14] conducted a study on patient satisfaction about services of immunization and ARC at government tertiary care hospital, Rajasthan, India, in 2018. In our study, majority 264 (89.79%) of respondents found that health-care providers were average and above for answering queries. In contrast with our study where communication was ranked first and technical quality was ranked third least among the components of patient satisfaction scale.

In our study, interpersonal manner which indicated behavior of staff and doctors was ranked third least and general satisfaction was ranked second highest among the components of patient satisfaction scale. In a study conducted by Mishra *et al.*,^[15] on patient satisfaction among those attending ARC of a tertiary care hospital of Gwalior City, shows that 80% patients agreed that the behavior of staff other than doctor was satisfactory and 78.57% were satisfied with overall medical care they received which was in contrast with our study findings where interpersonal manner was graded good by 36.5% of the participants.

In a study conducted by Kumar *et al.*,^[16] on the assessment of patient satisfaction in OPD of a tertiary care hospital in West

Table 4: Mean and standard deviation of service quality components of patient satisfaction scale-18 with mean ranking

Service quality components	Mean (SD)	Mean rank (Friedman test)
Accessibility and convenience	3.56 (0.75)	3.17
Communication	4.36 (0.61)	4.70
Financial aspects	4.10 (0.85)	4.04
General satisfaction	4.29 (0.67)	4.49
Interpersonal manner	4.02 (0.51)	3.67
Technical quality	4.17 (0.53)	3.85
Time spent with doctor	3.65 (0.92)	3.40

SD: Standard deviation

Bengal, India, showed that 78% of the study population were satisfied with the services received. About 54% of patients opined on waiting time is as usual as any normal OPD. Delays in the provision of hospital services are one of the key issues in care quality and can lead to a negative perception of the provided service quality.

Joshi *et al.*^[17] conducted a study on patient satisfaction of OPD services in a civic hospital Gujarat showed that overall efficiency of hospital was satisfactory in 92% of patients. About 68% of respondents said that the time of coming to hospital and consulted by doctor was too long. The communication and explanation of disease by doctors were found satisfactory in 80% and 91% respectively which was similar to our study findings.

In a study conducted by Moghaddam *et al.*,^[10] on the evaluation of service quality from patients' viewpoint conducted in a teaching hospital of Tehran for general OPD services showed that among eight dimensions of health service quality, the patients were more satisfied with physician consultation and services costs. The lowest mean scores were related to waiting time. There was a significant relationship between the positive perception of service quality with gender, education level, and waiting time in the clinics in contrast to our study findings. However, outpatient services were assessed as good, moderate, and weak by 57.5%, 40%, and 2.5% of the patients, respectively, which was similar to our study findings.

Strengths and Limitations

Patient satisfaction is recognized as an important parameter for assessing the quality of patient care services being delivered by health-care organizations. It is thus, a multidimensional concept and a subjective phenomenon. The study highlights the perceived needs of patients on various components of health-care quality.

The findings of the study cannot be generalized as the study area and sample are restricted to the tertiary care setup.

Patients often lack sufficient information and knowledge to assess the technical quality of health-care staff and services provided by them and they tend to assess them positively which can be a limitation of the study. Furthermore, health-care quality is affected by several factors and cannot be adequately explored through quantitative studies. However, a mixed approach of qualitative and quantitative methods such as key informant interviews and focus group discussion with patients and service providers would provide more insight into this area.

CONCLUSION

According to the study findings, more than half of them shared a positive experience as the mean scores of PS-18 belong to the category of good scoring. There was a significant association between religion, frequency of visit and category of wound with the overall scores of patient satisfaction scale. There was negative correlation between the cost incurred and the mean scoring. Among the components of the PS-18, communication and general satisfaction was highest ranked whereas accessibility and convenience and time spent with the doctor were among the least ranked.

The area in which the study was conducted is a government tertiary health-care facility which is located in the center of the city. Accessibility and convenience can be improved by marking directions inside the hospital campus thus ensuring easy identification of OPD. Furthermore, the findings could be valuable for health-care managers/providers for availability of necessary medications and to minimize their cost of treatment. Similar surveys and regular monitoring to be conducted to identify the lacunae and improvement opportunities to provide sustained health care.

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