

Original Article**Quality Assessment of Rehabilitation Services for Cancer Patients:
Experiences from a Bangladeshi Specialized Hospital**Nurjahan¹, Sadia Sobhan Pinki², Mashruba Ferdouse³, Md Fakhrul Alam⁴, Ismat Ara⁵,*Md Golam Abbas⁶**Abstract**

Background: Cancer, one of the most leading cause of death in the world. In Bangladesh, every year a huge number of deaths occur due to cancer. The burden of cancer can be lessened or prevented through health care services intervention and programs. In order to provide quality services, it is significant to notice by the authority whether the services are meeting the patients' demands and expectations.

Methods: A cross-sectional study was conducted to assess the quality of rehabilitation services for cancer patients in the National Institute of Cancer Research and Hospital (NICRH), Bangladesh among the purposively selected 87 cancer patients. Data was collected by a semi-structured questionnaire blended with SERVQUAL scale through face to face interview.

Results: The present study found that all the five dimensions of SERVQUAL scale for all rehabilitation service is >3.0 which means that all the services are availed by the respondents. Among all the socio-demographic factors, the only gender was associated with the cancer ($p < 0.05$).

Conclusion: It is concluded that NICRH is the pioneer institute and fights back against cancer successfully at the national level. It is recommended to establish oncology department at the regional level hospital of Bangladesh.

Keywords: Cancer, Quality services, SERVQUAL scale.

DOI: <https://doi.org/10.47648/jswmc2021v11-02>

JSWMC 2021 [11(01)] P: 19-25

Introduction

Cancer is the first two leading cause of death before the age of 70 years in 91 out of 172 countries, and it ranks third or fourth as the cause of mortality in an additional 22 countries.¹

Globally, the cancer incidence in men is one in five and one in six women.² It is estimated that the number of new cancer cases, cancer deaths and people living with cancer in 2012 was 14.1 million, 8.2 million and 32.6 million respectively and in 2030, there is expected to 23.6 million new cancer cases, which is 68% more than in 2012.³ In addition to adopting carcinogenic behaviors, socio-demographic factors namely as age, sex, education, occupation and residence also contribute to the risk of developing cancer.^{4,5} A large number of worldwide burden of cancer could be prevented or lessened by the implication of ongoing cancer control programs, also by adopting programs for tobacco control, vaccination, early detection and treatment, including public health programs which promoted physical activity and a healthier dietary intake.⁶

1. Medical Epidemiologist, Institute of Epidemiology, Disease Control and Research (IEDCR).
2. OSD (DGHS), Mohakhali, Dhaka 1212, Bangladesh.
3. Assistant Professor, Department of Community Medicine, Ashiyan Medical College, Dhaka.
4. Senior Consultant (Orthopedics), 250 Bedded General Hospital, Brahmanbaria.
5. Assistant Professor, Department of Nutrition and Biochemistry, National Institute of Preventive and Social Medicine (NIPSOM).
6. Assistant Professor, Department of Occupational and Environmental Health (OEH), National Institute of Preventive and Social Medicine (NIPSOM).

Corresponding author: Md. Golam Abbas PhD, Assistant Professor, Department of Occupational and Environmental Health (OEH), National Institute of Preventive and Social Medicine (NIPSOM), Bangladesh.
Email: abbasgolam@yahoo.com

In case of cancer, early diagnosis and management involves a range of supporting services such as radiology and imaging service, laboratory service, chemotherapy service, radiotherapy service, rehabilitation services and so on. Of these, rehabilitation services are identified as the pioneer, dynamic, limited, and purposeful processes which identify an individual suffering from disorders and help him or her to reach the level of optimum level of physical- mental, cognitive, and social performance.⁷ Presence of rehabilitation services in a hospital does not refer to its quality. In regards to health care services, quality of a service is involved with its resources, attitude, cost and outcome, and perception of the patients.⁷

To satisfy the clients, organizations nowadays carry a huge burden for maintaining the quality of services. The quality of services is an important factor for the growth, success and perseverance of an organization as well as an important factor for forecasting the outlook of the companies.⁸ In the health sector, the importance of healthcare and their relationship with human life, quality assurance and quality improvement has attracted the attention of sensible citizens who have increasing expectations from hospitals and other healthcare providers. Due to the significance of healthcare services, their quality improvement is becoming more and more important and the urge for quality control and quality management is increasing.⁹

Several settings use this common word "Quality". Quality can be defined as the consistency between service and the demands and expectations of its consumer.¹⁰ When the client's demands and expectations can be met by services then it can be said that the quality of the services has been gained (11). In order to improve a service's quality, it is important to

have customer opinions about it. Therefore, it is required to have clients' suggestions for adapting the services.¹¹ In order to assess the quality of health services, technical quality and functional quality are needed.¹² The authenticity of identification and management procedures are related with technical quality and non-clinical part is related with functional quality.¹³

Although health seeking services quality is difficult, but there are many methods for determining the quality of health services.¹⁴ Among them, SERVQUAL is one of the significant methods. It provides measurement to identify the satisfaction level of the consumer of health services rendered by both public and private sector hospitals.¹⁵ Consumers' perception in the case health services of both technical and functional quality is measured by this tool.¹⁶ Further, it gives opportunity to explore the gap between expectation and perception of patient in regards to quality services.¹⁷ In addition, this scale can analyze between similar health services institute and provide the outcome for non-quality services.¹⁴ Therefore, assessment of the services patients receives and compares with their ideal expectation is done by this instrument.

In Bangladesh, the number of new cancer cases, deaths and living in 2018 were about 1.5 lakh, 1.2 lakh and 2.43 lakh, respectively.¹⁸ National Institute of Cancer Research and Hospital (NICRH) is the apex body for medical oncology and postgraduate education of the country. It is a solemnly institute for cancer patient where every kind of clinical, supportive and nursing services are available with skilled manpower. It has an admirable position for providing high quality postgraduate education and specialized treatment for cancer patients. This study aimed to assess the status of rehabilitation services of this hospital.

Methods

A cross-sectional study was conducted to assess the quality of rehabilitation services for cancer patients in the National Institute of Cancer Research and Hospital (NICRH), Bangladesh. Total 87 cancer patients aged ≥ 20 years were selected purposively, who was admitted in the NICRH with any type of cancer and receiving rehabilitation services during the study period 1st January, 2019 to 31st December, 2019.

A semi-structured questionnaire containing 9 questions was administered to obtain socio-demographic, and types of cancer related information of participants. Further, the Bangla version of the modified SERVQUAL scale with 22 sets of questionnaires was used to assess the quality of rehabilitation service received by cancer patients. Among the 22 set questions, tangibility contains 4 questions, reliability contains 4 questions, responsiveness comprises of 4 questions, another 4 questions relate to assurance and the rest of the 5 question involves empathy. 5 points Likert scale ranging from strongly disagree indicates 1 to strongly agree indicate 5 was used to rate the services. The higher the sum of number, the better the quality of services.

A template was made after proper checking and cleaning of the data. IBM SPSS v21 software was used for categorizing the data, coding and recoding purpose. The analysis was carried out by using descriptive and inferential statistics and presented with frequency tables and charts. Ethical approval was taken from the Institutional Review Board (IRB) of National Institute of Preventive and Social Medicine (NIPSOM).

Results

Table I shows data on participants' socio-demographics and types of cancer. Among the respondents, about 63.08% were female and 36.92% were male. The highest percentage (25.40%) of participants' age was ranging from 30-39 years. About 49% of participants identified them as illiterate, while only 4% had graduation degree. Participants were involved with several types of occupations during interview. Of the, house wife was mentioned by the higher number of participants (54.60). In regards to the marital status, most of the respondents (92.30) had expressed them as married. The rural area's participants were more than the urban area at the hospital as it was estimated that 69.20% of respondents were from rural areas. It was noticed that approximately 21.69%, 17.24%, 11.5%, 11.5%, 7%, 12.6%, 4.5% and 14% of respondents had upper respiratory and lung, breast, colonic, rectal and anal, cervical, stomach, soft tissues and others cancers respectively.

Table I: Socio-demographic status and types of cancer of participants (n=87)

Variables		Percentage (%)
Age group (years)	20-29	19.20
	30-39	25.40
	40-49	22.30
	50-59	19.20
	60 or above	13.80
Gender	Male	36.92
	Female	63.08
Educational status	Illiterate	49
	Primary	25.20
	Secondary	15.20
	Higher Secondary	7
Occupation	Graduation	4
	Service holder	7.70
	Day labor	3.10
	Farmer	20
	Housewife	54.60
	Student	3.80
Marital Status	Business	10.80
	Married	92.30
	Unmarried	5.40
Residency status	Widow/Widower	2.30
	Urban	30.8
Types of cancer	Rural	69.2
	Upper respiratory & lung cancer	21.69
	Breast cancer	17.24
	Colonic cancer	11.5
	Rectal & anal cancer	11.5
	Cervical	7
	Stomach	12.6
	Soft tissue	4.5
Others	14	

Table II interprets that the five dimensions of SERVQUAL scale to assess the state of rehabilitation service. The perception of quality is high in Assurance (4.1±0.51) and low in Reliability (3.75±0.33). The whole five dimensions separately exceeded the number 3.00 which indicates the availability of all levels of service in the department during the interview.

Table III shows the association between socio-demographic status and cancer. The p-value for educational status was 0.069 followed by the residence status (0.216), age (0.113), marital status (0.429) and occupational status (0.216). Since gender's p-value is less than 0.05, representing it is as statistically significant. Therefore, gender has an association with the cancer.

Table II: The state of perception of participants of the study (n=87)

Dimension	Mean	SD	Perception
Tangible	3.83	±0.27	3.83±0.27
Reliability	3.75	±0.33	3.75±0.33
Responsiveness	3.74	±0.33	3.74±0.33
Assurance	4.1	±0.51	4.1±0.51
Empathy	3.75	±0.45	3.75±0.45

Table III: Association between cancer and socio-demographic status

Association between cancer and socio-demographic status	P-value
Gender	0.003
Educational status	0.069
Residence status	0.216
Age	0.113
Marital status	0.429
Occupation	0.232

The relationship between the types of cancer and rehabilitations can be found from the table IV. The P-value for upper respiratory & lung cancer, breast cancer, colonic cancer, rectal & anal cancer, cervical cancer, stomach cancer, soft tissues cancer and other cancer is found 0.128, 0.207, 0.321, 0.548, 0.122, 0.234, 0.657 and 0.087 respectively. It can be observed that the P-value of any type of cancer is not less than 0.05. Thus, there is no statistical association between the type of cancer and rehabilitation service.

Table IV: Association between types of cancer and rehabilitation services

Association between types of cancer and rehabilitation services	Percentage	P-value
Upper respiratory & lung cancer	21.69	0.128
Breast cancer	17.24	0.207
Colonic cancer	11.5	0.321
Rectal & anal cancer	11.5	0.548
Cervical cancer	7	0.122
Stomach cancer	12.6	0.234
Soft tissue cancer	4.5	0.657
Others	14	0.087

Discussion

This cross sectional study was conducted at a cancer specialized hospital in Dhaka, named National Institute of Cancer Research and Hospital (NICRH). This study attempted to assess the status of rehabilitation services of this hospital. Previously (2013) one study was conducted in Bangladesh which revealed that 30-65 years' age group showed maximum (66%) cancer occurrence.¹⁹ The present study found that 80% of respondents who were over 30 years of age or equal had the presence of cancer, which is quite similar to the previous study. On the other hand, according to current data, women are more likely to be diagnosed with cancer than men. This finding is contradicted by a longitudinal study report conducted in Bangladesh in 2015 because men had been affected there more than women.³ Therefore, it is recommended to carry out the gender-wise prevalence study in-depth in order to plan and implement the gender-specific prevention and management intervention program.

A very similar research was conducted in 2006 at Dhaka reported that 40% of study participants were illiterate, followed by 34%, 13.8%, 4.6%,

and 4.6% of respondents respectively had primary, secondary, higher secondary and graduation as their educational qualification.⁴ This finding is consistent with the current study. Unlike another research, the house wife is identified as the principal occupation by most of the respondents of the current study.⁴ Since women were the majority of respondents, therefore, it could be the reason to have this statistic. Regarding marital status, the present study shows the traditional position of Bangladeshi culture which is supported by recent research conducted by the Bangladesh Bureau of Statistics.² In addition, this study represents the real scenario about the religious status in Bangladesh which is compatible to the previous study.²

According to Monroe and colleagues, the incidence of cancer is higher among people living in urban areas than in rural areas.⁵ This statement contradicts the current study findings. Lifestyle and awareness of cancer at the individual level and availability of diagnosis center and tertiary hospital at the regional level may be responsible for this difference. Therefore, it is recommended to establish oncology different at the Upazila Health Complex across the country, and of taking different interventions and programs to increase the knowledge about cancer in the rural areas. On the other hand, it is clear that lung, breast and colonic cancers are the top three cancers by which Bangladeshi people are most affected.⁴ The current study supports the above results because respondents with upper respiratory and lung, breast and colon cancer were among the first three in number to receive rehabilitation services.

This research assessed the status of rehabilitation services at the NICRH hospital through SERVQUAL scale. In this case, the clients' perception was investigated through five

dimensions of this scale. The current research illustrates the perception of quality is high in assurance (4.1 ± 0.51), followed by tangible (3.83 ± 0.27), empathy (3.75 ± 0.45), reliability (3.75 ± 0.33) and responsiveness (3.74 ± 0.33). Although the responsiveness pictures the lower perception than the rest of the dimension, none has presented the perception less than 3 which indicates the availability of all quality services in the rehabilitation department at the hospital. Previous research conducted in Bangladesh and Pakistan supports the present study that if the respondents' perception is equal to or greater than 3, it indicates better quality of services.^{15,20}

In order to find out the distribution of cancer patient in a cancer hospital in Bangladesh, Talukder and colleagues conducted a study and reported that gender and age has association with the causation of cancer.⁴ Another study found the potential relationship between the causation of cancer and the urban areas people.⁵ Unlike these reports, the current research has only found an association with cancer and age. Furthermore, other sociological factors such as education, marriage, occupation, residence, home district, and religion did not reveal any association with cancer in this study. In addition to this, current research didn't find any association of the types of cancer and rehabilitation services but they are suspicious of having some sort of association; therefore, further investigations should take place.

Conclusion

Cancer is the 3rd leading cause of death and among elderly population (≥ 60 years old), it is the 7th leading cause of death in Bangladesh. Since the incidence and prevalence of cancer is more prevalent among women, ≤ 30 years of age and rural participants in this study, therefore, gender, age and region-specific programs and interventions should be adopted. This study also recommends conducting further investigation in

regard to the association between the causation of cancer and the socio-demographic factors as it has only found a link with gender. On the other hand, the present study found that all the five dimensions of SERVQUAL scale for all rehabilitation services are > 3.0 which means that all the services are availed by the respondents. Therefore, it is clear that NICRH is the pioneer institute and fights back against cancer successfully.

Competing Interests: No competing interests declared.

Funds: Not applicable.

References

1. World Health Organization. Bangladesh health system review. [Internet]. WHO Regional Office for the Western Pacific: 2015. Available from: https://apps.who.int/iris/bitstream/handle/10665/208214/9789290617051_eng.pdf [Cited November 20, 2020].
2. Bangladesh Bureau of Statistics. Report on Bangladesh sample vital statistics 2018. [Internet]. BBS: 2019. Available from: <http://data.bbs.gov.bd/index.php/catalog/163> [Cited November 21, 2020].
3. Paul TK, Banu PA, Alam MS, Sharif R, Rukhsana N, Monower MM. The overview of cancer patients attending in a specialized hospital: A cross sectional study. Bangladesh Medical Research Council Bulletin. 2015;41(2):95-100.
4. Talukder MH, Jabeen S, Islam MJ, Hussain SM. Distribution of cancer patients at National Institute of Cancer Research and Hospital in 2006. Bangladesh Medical Journal. 2008;37(1):2-5.
5. Monroe AC, Ricketts TC, Savitz LA. Cancer in rural versus urban populations: a review. The Journal of rural health. 1992;8(3):212-20.
6. Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. CA: a

- cancer journal for clinicians. 2011;61(2):69-90.
7. Marzban S, Najafi M, Etedal MG, Moradi S, Rajaei R. The evaluation of outpatient quality services in physiotherapy in the teaching health centers of Shahid Beheshti University based on SERVQUAL tools. *European Journal of Biology and Medical Science Research*. 2015;3(3):46-53.
 8. Sahney S, Banwet DK, Karunes S. An integrated framework of indices for quality management in education: a faculty perspective. *The TQM Journal*. 2008; 20(5):502-519
 9. Aghamolaei T, Eftekhari TE, Rafati S, Kahnouji K, Ahangari S, Shahrzad ME, Kahnouji A, Hoseini SH. Service quality assessment of a referral hospital in Southern Iran with SERVQUAL technique: patients' perspective. *BMC health services research*. 2014;14(1):322.
 10. Simmons F, Simmons JA. *Service Management, Strategy, Operations and Information Technology*. 2001.
 11. Sohail MS. Service quality in hospitals: more favourable than you might think. *Managing Service Quality: An International Journal*. 2003;13(3):197-206.
 12. Lam SS. SERVQUAL: A tool for measuring patients' opinions of hospital service quality in Hong Kong. *Total quality management*. 1997;8(4):145-52.
 13. Nekoei-Moghadam M, Amiresmaili M. Hospital services quality assessment. *International journal of health care quality assurance*. 2011; 24:57-66.
 14. Brahmabhatt M, Baser N, Joshi NP. Adapting the Servqual scale to hospital services: an empirical investigation of patients' perceptions of service quality. *International Journal of Multidisciplinary Research*, 2011; 1(8).
 15. Andaleeb SS. Public and private hospitals in Bangladesh: service quality and predictors of hospital choice. *Health policy and planning*. 2000;15(1):95-102.
 16. Chu SD, Nguyen AQ, Khong TS. Measuring healthcare quality in big public hospital in Vietnam country. *Journal of Hospital & Medical Management*, 2017; 3(3):1-10.
 17. Peprah AA, Atarah BA. Assessing patient's satisfaction using servqual model: A case of sunyani regional hospital, Ghana. *International Journal of Business and Social Research (IJBSR)*. 2014;4(2):133-43.
 18. International Agency for Research on Cancer. *Bangladesh: Fact sheet*. 2019.
 19. Hussain SA, Sullivan R. Cancer control in Bangladesh. *Japanese journal of clinical oncology*. 2013;43(12):1159-69.
 20. Shafiq M, Naeem MA, Munawar Z, Fatima I. Service quality assessment of hospitals in Asian context: An empirical evidence from Pakistan. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*. 2017;54:1-12.