European Journal of Medical and Health Sciences
Vol 5 | Issue 5 | October 2023
ISSN 2593-8339

RESEARCH ARTICLE

Enhancing Effective Verbal Communication Between Radiologic Technologists and Patients: Assessing the Impact of Service Delivery in Hospitals of Dhaka City

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ABSTRACT

Objective: **Effective communication is crucial in the field of radiography as it holds significant importance in the practice. Radiologic technologists need to possess an understanding of both the physical and emotional requirements of patients. This understanding can be attained through proficient communication skills.**

Methodology: **A qualitative research study was conducted in nearly fifteen private hospitals in Dhaka City in Bangladesh and 61 radiological technologists and 111 patients responds to this study.**

Result: **The most important thing is, radiological technologist data showed there were 40 (65.6%) radiological technologists using protective shields for patients when taking radiographic exams and likewise Patients data showed there were 65 (58.6%) patients said that the radiological technologists were not using protective shields when taking radiographic exam. This is a contradictory issue of each other. It is due to a lack of awareness among professionals and patients and also due to a lack of supervision of the concerned authority.**

Conclusion: **The study aimed to assess the extent of verbal communication occurring between radiological technologists and patients. It also sought to recognize the significance of patient care, ensuring patient safety, and determining priorities within diagnostic radiology departments.**

Keywords: Communication skills, Medical Imaging, Quality of patient service delivery, Radiologic Technologists

Submitted: August 30, 2023

Published: October 16, 2023

10.24018/ejmed.2023.5.5.1925

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1. Introduction

Communication, derived from the Latin word "communis" signifying sharing, refers to the process of transmitting information through the interchange of ideas, messages, or data. This transmission can occur through speech, visual aids, signals, written text, or actions, and it is fundamentally the creation of significance. A critical requirement throughout the entire process of radiographic assessment is proficient spoken communication [1]. Communication holds a significant position within the domain of radiography. Across various nations, a significant hurdle in healthcare revolves around offering services to the populace. Proficient communication abilities are a crucial element in initiating and upholding productive interactions between healthcare professionals and their patients [2]. Radiography commonly entails communication to convey information to the patient, encompassing explanations of procedures and associated matters relevant to the examination. This process incorporates multiple elements, including patient engagement, with the ultimate goal of producing high-quality diagnostic data [3]. However, research indicates that professionals who excel in verbal communication with their patients do not necessarily allocate more time per patient than those who express being too rushed for extensive conversation. Interestingly, certain studies have revealed a decrease in the overall examination duration as verbal communication intensifies.

Competent verbal communication encompasses the demonstration of professional demeanor, a respectful attitude towards fellow professionals and patients, and the

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obligation to serve as a patient supporter throughout the entirety of their care. Radiologic technologists commonly assume the role of patient advocates, encompassing tasks such as obtaining patient medical histories, issuing clear instructions for contrast study fasting, and articulating post-examination care using language and explanations that align with the patient's comprehension [4]. Patients experience various advantages, including improved adherence to treatment, heightened satisfaction, the provision of emotional backing, reduced anxiety, alleviation of symptoms, and assistance in making well-informed decisions.

In comparison to other healthcare practitioners, radiologic technologists typically engage in succinct and focused communication interactions with patients. For instance, during a chest X-ray, a radiologic technologist interacts with the patient for approximately 5 to 10 minutes, which encompasses greeting, identity verification, instruction during the examination, and concluding the process. This necessitates the radiologic technologist to rapidly establish a connection and foster trust within a limited timeframe [5].

Furthermore, radiologic technologists frequently find themselves among the initial healthcare practitioners to encounter patients during periods when the individuals might be grappling with elevated levels of stress, anxiety, or discomfort regarding their symptoms and potential diagnosis. It is essential for radiologic technologists to demonstrate proficient communication capabilities to alleviate any anxiety the patient might be undergoing and to furnish them with the necessary information [6].

Radiologic technologists commonly have limited patient information available to them prior to conducting a radiographic procedure. Patient notes are often inaccessible, and they typically receive concise request forms with minimal clinical details. Consequently, it would prove advantageous if radiologic technologists invested time in effective patient communication and the acquisition of a brief patient medical history prior to performing a radiographic scan.

Unlike health professionals such as General Practitioners, nurses, and physiotherapists, who employ history-taking to formulate diagnoses and determine the necessity for further diagnostic tests, radiologic technologists are not routinely trained in comprehensive patient history-taking. Incorporating patient history-taking into the routine of radiologic technologists before conducting radiographic imaging holds the potential to enhance the examination process, ensure the appropriateness of the procedure, and offer supplementary information for radiologists responsible for the subsequent examination reports [7].

Our intention was to contribute to the ongoing discourse regarding the assessment of patient perceptions about communication. Specifically, this study was designed with the objective of evaluating the efficacy of multicultural communication and its influence on the outcomes of radiological examinations. Existing training programs for radiography students lack a focus on gauging patient perceptions of effective communication. Recognizing the significance of comprehending effective communication encounters from the patients' standpoint, there exists a need to formulate novel communication skills training approaches and tools for gathering patient feedback. This preliminary investigation aimed to scrutinize the factors contributing to an effective communication interaction between a diagnostic radiographer and a patient, as perceived by the patient. Additionally, our aim was to explore how these communication skills impact the rapport between a radiographer and their patient.

While research has examined radiological technologists' attitudes towards their patients, there remains an unexplored territory in investigating effective verbal communication, particularly within Dhaka city, Bangladesh.

2. Purpose of Study

- The study aims to determine the prevailing extent of verbal communication within the research area.
- Additionally, it seeks to ascertain the patients' reception of verbal communication, whether positive or negative.

3. Research Methodology

This is a preliminary descriptive cross-sectional study among 61 radiological technologists and 111 patients of Dhaka city in Bangladesh. A non-experimental, qualitative design was used. Surveys were used to identify trends in attitudes, opinions, behaviors, or characteristics of the population on effective verbal communication. The target population for the research are all practicing radiological technologists and patients are randomly selected from fifteen private hospitals of Dhaka City in Bangladesh and all out-patients of various age brackets of both male and female that underwent radiographic examinations in the hospitals within the period of study. A convenient sampling method was adopted to select all patients who met the criteria during the period of study. The total population selected for the study was 61 radiological technologists and 111 patients. Emergency patients, patients with psychiatric disorders, and unconscious patients were excluded from the sample. The radiological technologists must be working at the hospitals of the research at the period of the research. The data source is primary since the information was collected directly from the radiological technologists and the patients by the researcher. The gathered data underwent basic descriptive analysis. The results obtained are presented in bar charts, pie charts, and frequency tables and the categorization into tables is based on the objectives of the study which the responses are aimed to solve. All participants consented verbally to fill out the questionnaires and join the study and no names or any personal data were available to publish.

4. Result

The data is presented in two segments, one is presentation of data collected from the radiological technologists and another is presented of data collected from the

TABLE I: Age and Sex Distribution of Radiological Technologists

Age variable	Male	Percentage	Female	Percentage
20–29	37	60.6%	12	19.7%
30–39	12	19.7%	–	–
40 and above	–	–	–	–
Total	49		12	

TABLE II: Educational Qualification of Radiological Technologists

Educational qualification	Number	Percentage (%)
Diploma	24	39.3%
B.Sc.	33	54.1%
M.Sc.	4	6.6%
Total	61	100%

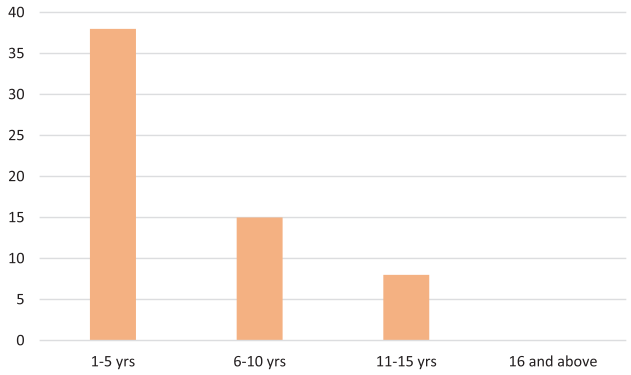

Fig. 1. Number of radiological technologists against years of working experience.

TABLE III: Radiological Technologist's Religions and Married Status

Demographic data	Variable	Number	Percentage
Religion	Muslim	55	88.5%
	Hindu	7	11.5%
Marital status	Married	17	27.9%
	Single	44	72.1%

patients. The patient's data are collected from a verbal communication system with ethical consideration. The radiological technologist's data are collected in two ways, online base, and offline base data collecting systems with ethical consideration. The study was conducted in private hospitals in Dhaka city in Bangladesh. The collected data are presented here in tables, figures, and charts like as bar charts, and pie charts. The data had been collected from 61 radiological technologists and 111 patients who come from different private hospitals in Dhaka city. The radiological technologists and patient's ratio is almost 1:2.

4.1. Presentation of Data Collected from Radiological Technologists

Table I shows that most of the participants were from the age group 20–29 years and a greater percentage of the respondents were males with N = 48.

Table II shows that the majority of the radiological technologists are B.Sc. holders 32 (53.3%) and have the highest educational qualification.

Fig. 1 shows that 38 (62.3%) of radiological technologists have working experience from 1 to 5 years, 15 (24.6%) from 6 to 10, and 8 (13.1%) from 11 to 15 years.

Table III shows that 55 (88.5%) of radiological technologists are Muslim and 44 (72.1%) are single.

From Table IV it can be seen that 73.8% (N = 45) of radiological technologists do tell their names before the radiographic exam. It is noted that 98.4% (N = 60) of medical technologist ask the patients about their illness or how do they feel. A maximum of 88.5% (N = 54) of radiological technologists allow asking questions. It is a positive sign that 100% (N = 61) of radiological technologist think that there should be an effective verbal communication 65.6% (N = 40) of medical technologists use protective shields for patients when taking X-rays. 93.4% (N = 57) of radiological technologists do wait or want an order from a physician before performing an x-ray or their imaging services. 96.7% (N = 59) do take time to explain the procedures to patients and 83.6% (N = 51) radiological technologists have provided patients screening for contrast X-ray. The dignity, privacy, and autonomy of patients were observed during the procedure by 90.2% (N = 55) of radiological technologists. 72.1% (N = 44) of radiological technologists do tell the patients about the harmless effects of radiation.

Table V shows that 95.1% (N = 58) of radiological technologists said that they take to explain the patient and reassure them. Here, we also can see that patients comply adequately with the radiological technologist's instruction and the percentage; the rate is 88.5% (N = 54). 70.5% (N = 43) of the radiological technologists claimed that they keep instructing until the patients have understood before radiographic exposure. 68.9% (N = 42) of radiological technologists claim that they are repeating exposures sometimes avoidable. 82% (N = 50) of radiological technologists take more than 30 minutes time for contrast X-ray.

4.2. Presentation of Data Collected from Patients

Table VI shows that a greater percentage of the respondents were male 51.3% (N = 57) and mainly in the age of 15–30 years.

Table VII shows that most of the patients are married 62.2% (N = 69) and 42.3% (N = 47) of patients are students. 29.7% (N = 33) of the patients have S.S.C educational qualification and 95.5% (N = 106) are Muslim. The percentage of single patients is 37.8%

Table VIII shows that among 100% of people, 98.2 % (N = 109) claimed that they received properly by the radiological technologists after they arrived at the examination room. 95.5% (N = 106) of patients were satisfied with the reception they received. 63.1% (N = 70) patients said the radiological technologists introduced themselves to them. 93.7% (N = 104) replied that radiological technologists asked patients about their illnesses and how they feel. 91% (N = 101) of people have visited the X-ray department before. 94.6% (n = 105) of patients replied that the radiological technologists explained the procedures before carrying out the exam. 84.7% (N = 94) said they didn't have to spend too much time in the department with a greater percentage of 58.6% (N = 65) patients claiming that

TABLE IV: Radiological Technologist's Response to Special Care of Patients

Questions for medical technologists	Yes Frequency	No Frequency	Total Frequency
Do you tell patients your name before carrying out radiographic exam on them?	45 (73.8%)	16 (26.2%)	61 (100%)
Did you ask the patient about his/her illness and how he/she feels?	60 (98.4%)	1 (1.6%)	61 (100%)
Did you give room for the patient to ask questions?	54 (88.5%)	7 (11.5%)	61 (100%)
Do you think there is a need for effective verbal communication between the medical technologist and patients?	61 (100%)	–	61 (100%)
Do you use protective shields for patients when taking X-ray?	40 (65.6%)	21 (34.4%)	61 (100%)
Do you need a doctor's order for an x-ray or other imaging services exam?	57 (93.4%)	4 (6.6%)	61 (100%)
Did you take time to explain the procedures to patient?	59 (96.7%)	2 (3.3%)	61 (100%)
Do you have provided patients screening for contrast X-ray?	51 (83.6%)	10 (16.4%)	61 (100%)
Was the dignity, privacy and autonomy of patients observed during service?	55 (90.2%)	6 (9.8%)	61 (100%)
Did you tell the patients about the harmful effects of radiation?	44 (72.1%)	17 (27.9%)	61 (100%)

TABLE V: Radiological Technologist's Response to Descriptive Data of the Patients

Question	Variable	Number of frequency	Total number of frequency
If a patient objects to an exam based on fear or any other reason, what do you do?	Send him out and call in the next patient	2 (3.3%)	61 (100%)
	Take time and explain to him/her and reassure him/her	58 (95.1%)	
	Force him/her to undergo the exam	1 (1.6%)	
To what extent do your patients comply with your instructions?	Adequate	54 (88.5%)	61 (100%)
	Not adequate	2 (3.3%)	
	I don't know	2 (3.3%)	
	Others specify	3 (4.9%)	
How many times do you instruct a patient before a radiographic exposure?	Once	7 (11.5%)	61 (100%)
	Twice	7 (11.5%)	
	Thrice	4 (6.6%)	
	I keep instructing until am sure he has understood	43 (70.5%)	
Repeat exposures are?	Sometimes avoidable	42 (68.9%)	61 (100%)
	Unavoidable	15 (24.6%)	
	Both unprofessional and unethical	4 (6.6%)	
Usually how long does the contrast X-ray exam?	1–15 mins	3 (4.9%)	61 (100%)
	16–30 mins	8 (13.1)	
	More than 31 mins	50 (82%)	

TABLE VI: Age and Sex Distribution of the Patients

Age variable	Male	Percentage	Female	Percentage
15–30	34	30.6%	31	27.1%
31–45	13	11.7%	15	14.4%
46–60	5	4.5%	8	7.2%
61 and above	5	4.5%	–	
Total	57	51.3%	54	48.7%

the radiological technologists were not using protective shields for them when taking X-rays. 93.7% (N = 104) indicated that the radiological technologist communicates effectively while 6.3% (N = 7) indicated that the radiological technologists did not communicate effectively with them. Maximum number of patients 78.4% (N = 87) said yes to the question if they think radiological technologists need to improve in the way they talk to the patients. 94.6% (N = 105) said that they observed that the waiting room and bathroom were kept clean. 97.3% (N = 108) of patients were positive in recommending the hospital to their friends and family.

69% (N = 77) of the patients indicated that there were too many patients, 23% (N = 26) patients indicated that the radiological technologist tried but they could not understand the language he/she used, 7% (N = 8) patients indicated that the radiological technologist was too (Fig. 2).

TABLE VII: Demographic Data of the Patients

Demographic	Variable	Frequency	Percentage	Total
Marital status	Single	42	37.8%	111 (100%)
	Married	69	62.2%	
Profession	Student	47	(42.3%)	111 (100%)
	Trader	6	(5.4%)	
	Civil servant	10	(9%)	
	Farmer	10	(9%)	
	Others specify	38	(34.2)	
Educational qualification	No formal education	17	8.1%	111 (100%)
	S.S.C	33	29.7%	
	H.S.C	26	23.4%	
	BSC	16	14.4%	
	MSC	10	9.1%	
	Others specify	9	8.1%	
Religion	Muslim	106	95.5%	111 (100%)
	Hindu	5	4.5%	

TABLE VIII: Shows the Patients Response to the Radiological Technologists

Questions	Yes Frequency	No Frequency	Total Frequency
Were you properly received on arrival to the examination room by the radiographer?	109 (98.2%)	2 (1.8%)	111 (100%)
Were you satisfied with the type of reception given to you?	106 (95.5%)	5 (4.5%)	111 (100%)
Did the radiographer introduce himself or herself to you?	70 (63.1%)	41 (36.9%)	111 (100%)
Were you asked about your illness and how you feel?	104 (93.7%)	7 (6.3%)	111 (100%)
Have you been to the x-ray department before?	101 (91%)	10 (9%)	111 (100%)
Did the radiographer explain the procedures to you before carrying out the exams?	105 (94.6%)	6 (5.4%)	111 (100%)
Were you asked to come into the x-ray room for repeat examinations?	89 (80.2%)	22 (19.8%)	111 (100%)
Do you think you spent too much time in the department?	17 (15.3%)	94 (84.7%)	111 (100%)
Do you think the radiographer communicated with you effectively in this department?	104 (93.7%)	7 (6.3%)	111 (100%)
The radiographer was using protective shields for yours when taking X-ray.	46 (41.4%)	65 (58.6%)	111 (100%)
Do you think the radiographer need to improve in the way he talks to patients.	87 (78.4%)	24 (21.6%)	111 (100%)
During this hospital stay, how often you observed that waiting room and bathroom kept clean	105 (94.6%)	6 (5.4%)	111 (100%)
Would you recommend this hospital to your friends and family?	108 (97.3%)	3 (2.7%)	111 (100%)

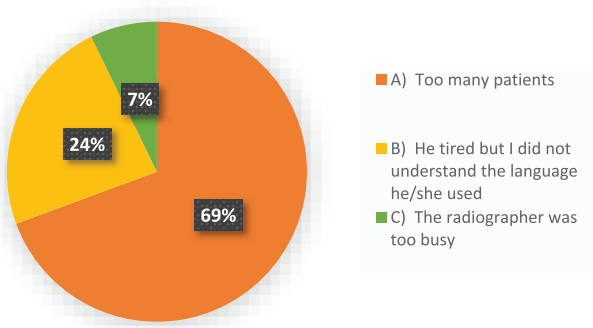

Fig. 2. Cause of the radiological technologists not communicating effectively with the patients during the examination.

Table IX shows that out of 100% (N = 111) the most exposed region of the body according to the data given by the patients is the chest, which 40.5% (N = 45) maximum patients 31.5% (N = 35) said they had been once in the radiology department in their life with a greater percentage of 66.7% (N = 74) patients said that the attitude of the radiological technologist towards the patient was good. 76.6% (N = 85) of patients quantified 5–15 minutes they spent in the department. When the patient was asked to rate their overall satisfaction with the way the radiological technologist interacted with them during the procedures a greater percentage of patients 59.5% (N = 66) said it is adequate.

5. Discussion

Effective verbal communication between radiological technologists and patients is integral to achieving radiographs of optimal quality. This study was carried out to determine how effective verbal communication between radiological technologists and patients in the radiology department.

5.1. Demographic Findings

This research has shown that gender distribution between the radiological technologists is 80.3% male and 19.7% female. This shows that the radiological technologist profession is often seen as being dominated more by males. Also, the age of the radiological technologist fall between 20–29 years (60.6%), and among the studied population, no female are at the age of 40 years and above. The findings also show that the 54.1% of the radiological technologists of B.Sc. students with work ecperience below 5 years.

The majority of the patients considered effective verbal communication practice necessary in the radiology department. A greater percentage (93.7%) said it is necessary to consider effective verbal communication while few (6.3%) said it is not.

It is a positive sign that all radiological technologists think that there should be effective verbal, communication between the radiological technologists and patients. Effective verbal communication between them is critical to good medical outcomes. A maximum number of radiological technologists (98.4%) asks the patients about their illness and how they feel, and 96.7% explain a radiographic procedure to patients.

It is shown that a greater percentage of MT (65.6%) use protective shields for patients when taking radiographic exams. To the same quesiton, 58.6% of the patients replied negatively. During the radiographic exam procedure, the findings are contradictory between radiological technologists and patients.

Here, it can be clearly see that the understanding has a huge lack of facility and awareness of the radiology department. It can mean that the radiological technologists answered based on the standards and not what is obtainable in their department. Furthermore, within this research, it is evident that radiologic technologists make strides in addressing this concern. An overwhelming number of (96.7%) consistently engage in explaining the examination process to the patient. On the patients' side, when inquired whether radiologic technologists provide explanations of procedures before the examination, 94.6% affirmed this practice. This encouraging trend identified in the study should be maintained and further cultivated.

The majority of the radiological (73.8%) said they told patients their names and 88.5% of the patients indicated that the radiological technologists did give room for them to ask questions. Most of the (84.7%) think they did not spend too much time in the department. 98.4% of radiological technologists, ask the patients about their illness and

TABLE IX: Shows the Descriptive Data of the Patients

Question	Variable	Frequency	Total frequency
What part of your body was examined	Head/Neck	30 (27%)	111 (100%)
	Chest	45 (40.5%)	
	Leg/Hand	14 (12.6%)	
	Pelvis	11 (9.9%)	
	Abdomen	11 (9.9%)	
How often have you done x-ray exam before?	Once	35 (31.5%)	111 (100%)
	Twice	28 (25.2%)	
	Thrice	20 (18%)	
	Can't remember	28 (25.2%)	
What would you say generally about the attitude of the radiographer towards you?	Very poor	2 (1.8%)	111 (100%)
	Poor	3 (2.7%)	
	Good	74 (66.7%)	
	Very Good	32 (28.8%)	
Can you quantify the time you spent?	5–15 min	85 (76.6%)	111 (100%)
	16–30 min	21 (18.9)	
	31–60 min	3 (2.7%)	
	More than 1 hour	2 (1.8%)	
How do you rate your overall satisfaction with regards to the way radiographer interacted with you during the procedures?	Adequate	66 (59.5%)	111 (100%)
	Manageable	44 (39.6)	
	Inadequate	1 (0.9%)	

how they feel which is a good result effect for radiological technologists and patients.

The feedback from patients regarding the potential reasons for inadequate communication with radiologic technologists during the examination was noted in this study. 69% (N = 77) patients indicated that there were too many patients. 24% (N = 26) patients indicated that the radiological technologists tried but they could not understand the language he/she used. 7% (N = 8) patients indicated that the radiological technologists were too busy this was related to the work done by the entire of Dhaka city in private hospitals. The reason for the busyness seems to be lack of entire facilities for patient flow, manpower, and space for waiting rooms the patients need. For this reason, sometimes the radiological technologists were not able to communicate properly during the radiographic exam time.

To the question of contentment concerning the manner in which radiologic technologists engaged with them throughout the procedure, a 59.5% of patients said that it is adequate while 39.6% of patients replied that the way the radiological technologist interacted with is manageable. 98.2% of the patients were properly received on arrival to the examination room by the radiological technologists and 95.5% were satisfied by the type of reception.

Since radiological technologists form a part of the healthcare team, they must deliver an efficient service. To accomplish this, radiological technologists need to be sensitive to patients' needs and satisfaction.

Accordingly, 90.2% of radiological technologists kept the dignity, privacy, and autonomy of patients observed during service. Patients were also satisfied overall during procedures and 97.3% of the patients would recommend their hospital to his/her family and friends, where he/she had gotten service.

Patients' viewpoints regarding radiologic technologists displayed a favorable pattern. In total, a majority of respondents evaluated their interactions with medical technologists as positive. Likewise, more than 76.6% of patients rated the service duration in the radiology department as 5 to 10 minutes. This implies that more than half of the observed clients exhibited contentment with the department's services. This observation aligns with the study's findings that effective communication correlates with patients' perception of excellent care quality and their overall satisfaction.

6. Conclusion

The results of the study indicate that most radiologic technologists had good communication with their patients and were trying to manage various complex situations differently until the desired results were achieved.

It was seen that most of the patients were satisfied with the way the radiologic technologists interacted with them during the welcome, procedure, and service delivery. This is in line with research indicating that effective communication plays a role in shaping patients' views of superior care quality and their satisfaction as patients. However, about one-third of medical technicians used protective shields during radiographic procedures such as X-rays and CT scans, according to data acquisition. On the other hand, most patients claimed that medical technicians did not use protective shields during the procedure. Hence, there was a significant lack of adequate knowledge about patient safety, protection, priority, and supervision of concerned service-providing authorities.

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