



Research Paper

Assessment of the Knowledge, Attitude and Perceptions to Radiotherapy Among Final Year Medical Students Of Abia State University Medical School In Aba, South East Nigeria

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ABSTRACT

Radiotherapy, also called Radiation therapy, is a very important treatment modality of most cancers and some benign conditions.

It is a loco- regional modality of management. When the beam is given from an external source it is termed external Beam Radiotherapy.

When Radiotherapy (RT) is given by the implantation of radioactive seeds into a body cavity, it is termed Brachytherapy.

Radiotherapy is associated with several adverse effects causing a poor attitude and perception among the public.

The aim of this study was to assess the knowledge, attitude and perception to radiotherapy by final year medical students of Abia State University Medical School who are graduating to become doctors - major caregivers to the patients.

It was a cross-sectional study involving the use of structured questionnaires written in English Language and distributed to the medical students to complete and return.

A total of 120 questionnaires were given out with 108 fully completed and returned. All the students 108 (100%) had heard about radiotherapy but only 56 (51.85%) had heard about external Beam Radiotherapy while only 44 (40.74%) had heard about Brachytherapy.

Class lectures constituted the most common source of information on Radiotherapy with 72 (66.6%),

Majority, 73 (67.59%) felt that malignancy was the only indication for radiotherapy while 25 (23.15%) rightly felt it can also be used for some other Benign conditions.

92 (85.18%) knew about the adverse effects of RT but sadly only 56 (51.85%) were willing to recommend it to people when indicated.

Only 56 (51.85%) had good attitude and perception towards RT, while 50 (46.29%) had poor attitude and perception.

Of the 50 students with poor perception, 30 (60%) were due to fear of adverse effects while 14 (28%) were due to the fear of second cancer and only 6 (12%) were due to high cost of radiation treatment.

Knowledge, attitude and perception were found to be poor among final year medical students, a group of major care givers whose positive attitude and perception is critical in influencing the attitude and perception of the patients towards RT.

Keywords: Knowledge, attitude, perception, radiotherapy, final year medical students and Aba.

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I. INTRODUCTION

Radiotherapy is a management modality in the treatment of most cancers and a few benign conditions.

It employs beams of intense energy such as X-rays and protons to destroy cancer cells.

When given from outside the body it is termed External Beam Radiotherapy. High energy beams from machines called linear accelerators are focused onto the body.

On the other hand when radioactive seeds are implanted into body cavities, it is termed Brachytherapy.

Radiotherapy can also be given by the injection of Radioactive substances called Radiopharmaceuticals into the body.

The mechanism of action of RT is the use high energy beams to damage the genetic materials in the nucleus of the cells responsible for cell division and growth.

The Indications for RT include:

- Most malignant tumors
- Some Benign tumors
- Some non neo-plastic conditions such as spinal cord compression, intractable pains and intractable hemorrhage

In the management of malignancies, it can be used as a sole modality of treatment called primary treatment.

It can also be used on an adjuvant basis to treat the remaining cancer cells after surgery.

It can also be used on neo-adjuvant basis where it is applied in shrinking or down staging tumors before surgery.

It can also be given to deal with specific symptoms of cancer.

It can also be given in conjunction with chemotherapy called chemo- radiation.

Despite these beneficial effects, RT has several adverse effects which are dependent on:

- The area of the body radiated
- The type of cancer
- The dose of radiation given
- The duration of exposure
- Host immunity
- The presence of comorbidities

The adverse effects include:

- Hair loss which may be temporary or permanent
- Difficulty in swallowing
- Sore throat
- Loss of taste
- Nausea, vomiting and diarrhea
- Mouth sores
- Tooth decay
- Cough
- Shortness of breath
- Erectile dysfunction
- Bladder irritation
- Development of new cancers

When these adverse effects occur within weeks of exposure, they are termed early effects.

When they occur due to non-treatment of early effects, they are termed consequential effects.

When they occur months or years after exposure, they are termed late effects.

Radiotherapy is a loco regional treatment aimed at targeting the diseased tissues but has the capacity to damage surrounding normal tissues. Various methods have been devised to produce variants all in a bid to reduce the adverse effects.

External beam radiotherapy has several variants.

- 1) **3 – Dimensional Conformal Radiotherapy (3D – CRT)** which has special computers to map out the diseased area.
- 2) **Intensity Modulated Radiotherapy (IMRT)** - It is an advancement of 3D – CRT, which rotates round the patient delivering radiation to the target organ from several angles. A variant of this is called Volumetric Modulated Arc Therapy (VMAT). It delivers radiation much quicker than IMRT.
- 3) **Stereostatic Body Radiation Therapy** - It uses advanced image guided techniques to deliver large doses of radiation to a precise site on the target organ.
- 4) **MRI – Guided Radiation Therapy** - This combines 3D – CRT and IMRT and image guided techniques together.
- 5) **Proton Beam Radiation Therapy** - It focuses a beam of protons on a target area instead of photons or X-rays which release their energy before and after hitting the target tissues, and therefore can inflict damage on surrounding normal tissues whereas protons release their energy a little distance to the target area, making them less able to inflict damage.
- 6) **Hypofractionation Techniques** - A technique used to deliver high doses of radiation over a short period so as to reduce the period of exposure.

Brachytherapy, also called seed implantation or interstitial radiation therapy is used for:

- Early state cancer
- Can be used in conjunction with external beam where risk is high

The variants include:

- Permanent (low dose rate) Brachytherapy
- Temporary (high dose rate) Brachytherapy

All these measures are instituted to make radiotherapy safer, more acceptable so as to improve public attitude and perception.

II. METHODOLOGY

The study was cross sectional in design and carried out among final year medical students of Abia State University Medical School Aba, South East Nigeria. It involved the use of structured questionnaires written in English Language and given out by resident doctors to final year medical students.

A total of 120 questionnaires were given out, with only 108 completed and returned.

The questionnaires contained questions on knowledge, attitude and perceptions to radiotherapy and reasons for the attitude.

Data from the completed questionnaires were collated, analysed and interpreted.

INCLUSION CRITERIA

Males and females in the final year medical class.

EXCLUSION CRITERIA

Medical students below the final year class and non-medical students were excluded.

III. RESULTS

TOTAL NUMBER OF PARTICIPANTS = 108

TABLE 1 -SHOWING KNOWLEDGE OF THE TYPES OF RADIOTHERAPY

S/N	TYPE OF RADIOTHERAPY	NUMBER	PERCENTAGE
1	RADIOTHERAPY	108	100
2	EXTERNAL BEAM RADIOTHERAPY	56	51.85
3	BRACHYTHERAPY	44	40.74
4	NEVERY HEARD OF BOTH EXTERNAL BEAM & BRACHYTHERAPY	20	18.51

All the respondents had heard and known of radiotherapy as a form of treatment, many did not know the different forms of radiotherapy.

FIGURE 1 – SHOWING KNOWLEDGE OF THE TYPES OF RADIOTHERAPY

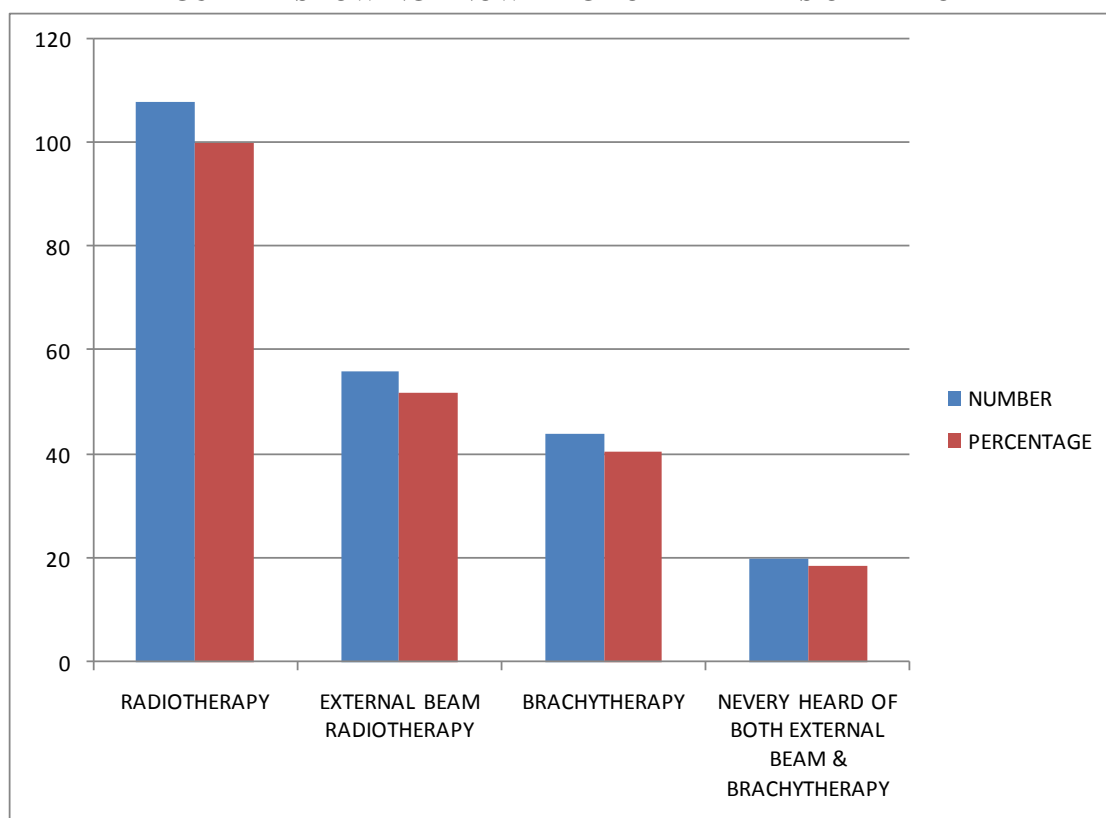


TABLE 2 -SHOWING THE SOURCE OF KNOWLEDGE OF RADIOTHERAPY

S/N	SOURCE	NUMBER	PERCENTAGE
1	LECTURES	72	66.66
2	CONSULTING CLINICS	16	14.81
3	WARD ROUNDS	12	11.11
4	HEALTH CARE WORKERS	8	7.41
	TOTAL	108	100

Lectures remained the most common source of knowledge of radiotherapy.

FIGURE 2 – SHOWING THE SOURCE OF KNOWLEDGE OF RADIOTHERAPY

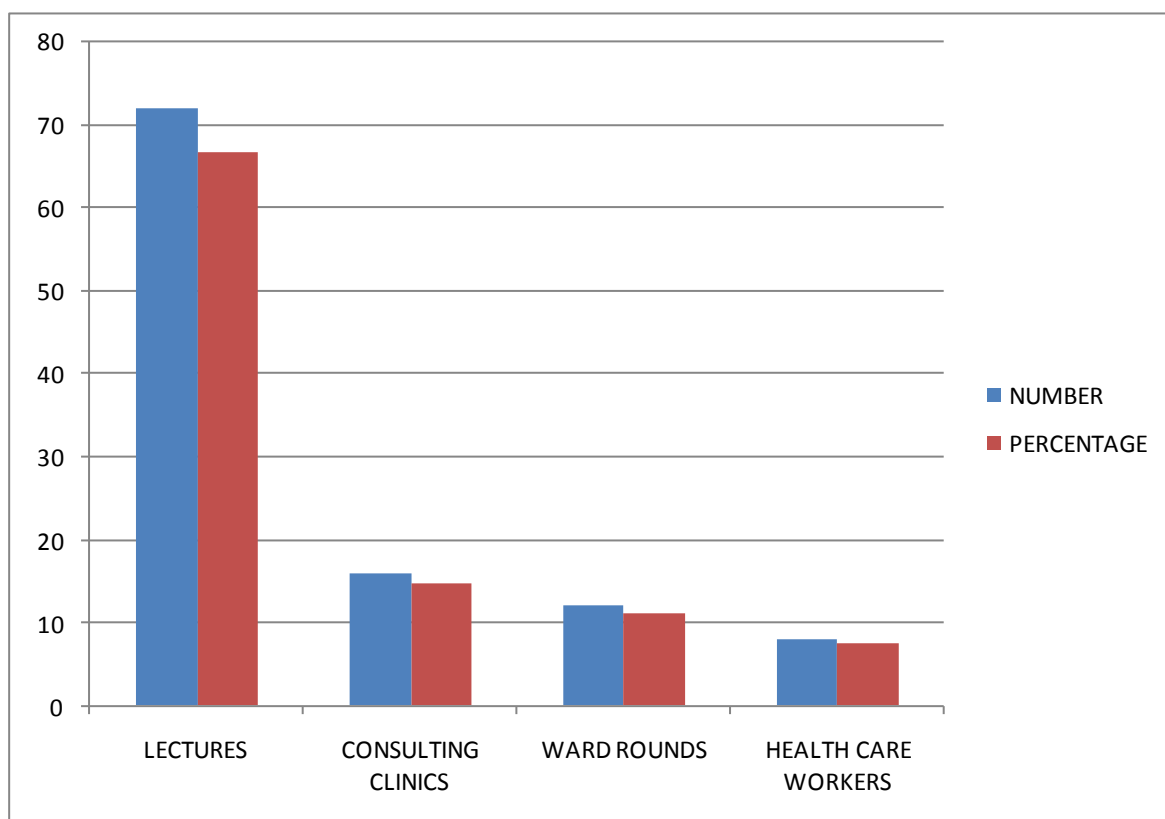


TABLE 3 -SHOWING KNOWLEDGE OF THE INDICATIONS FOR RADIOTHERAPY

S/N	INDICATION	NUMBER	PERCENTAGE
1	MALIGNANT CONDITIONS ONLY	73	67.59
2	MALIGNANT AND SOME BENIGN CONDITIONS	25	23.15
3	NO ANSWER	10	9.25
	TOTAL	108	100

Of the 108 respondents, only 25 (23.15%) knew rightly that radiotherapy was mainly for malignant conditions but also for a few benign conditions.

TABLE 4 -SHOWING KNOWLEDGE OF THE NATURE OF TREATMENT

S/N	NATURE OF TREATMENT	NUMBER	PERCENTAGE
1	LOCO REGIONAL TREATMENT	64	59.26
2	OTHER FORMS OF TREATMENT	44	40.74
	TOTAL	108	100

Only 64 respondents (59.26%) knew rightly that radiotherapy is a loco regional treatment

FIGURE 3 - SHOWING KNOWLEDGE OF THE NATURE OF TREATMENT

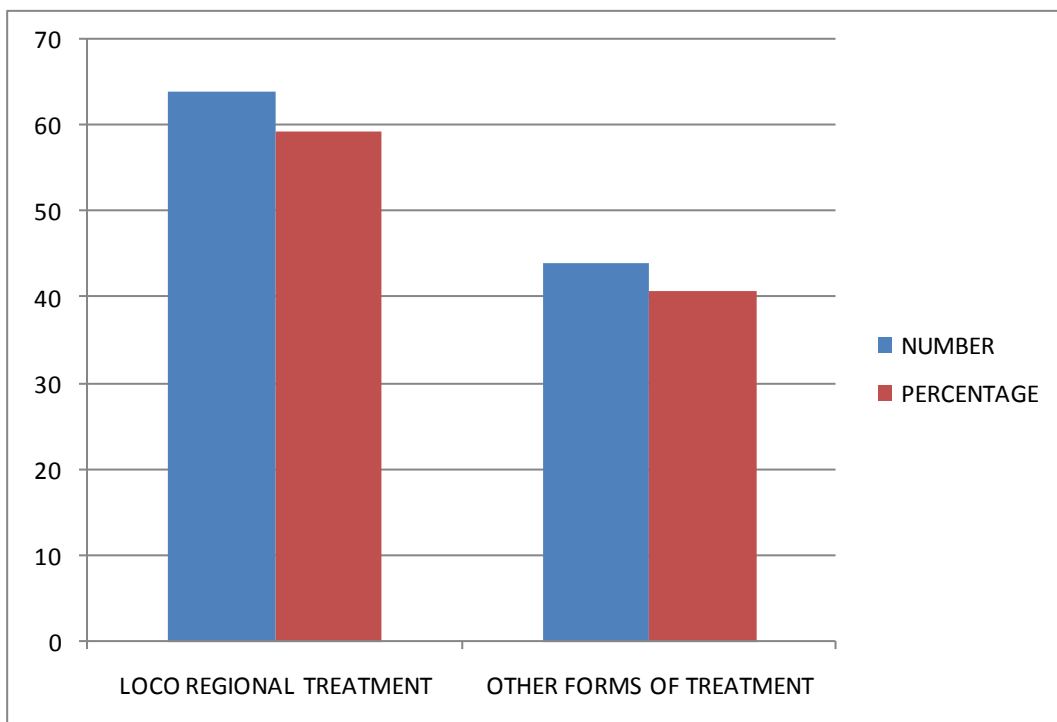


TABLE 5 - SHOWING KNOWLEDGE OF THE ADVERSE EFFECTS ASSOCIATED WITH RADIOTHERAPY

S/N	KNOWLEDGE OF ADVERSE EFFECTS	NUMBER	PERCENTAGE
1	KNOWLEDGE OF ADVERSE EFFECTS	92	85.18
2	NO KNOWLEDGE OF ADVERSE EFFECTS	10	9.30
3	NO ANSWER / RESPONSE	6	5.56
	TOTAL	108	100

FIGURE 4 - SHOWING KNOWLEDGE OF THE ADVERSE EFFECTS ASSOCIATED WITH RADIOTHERAPY

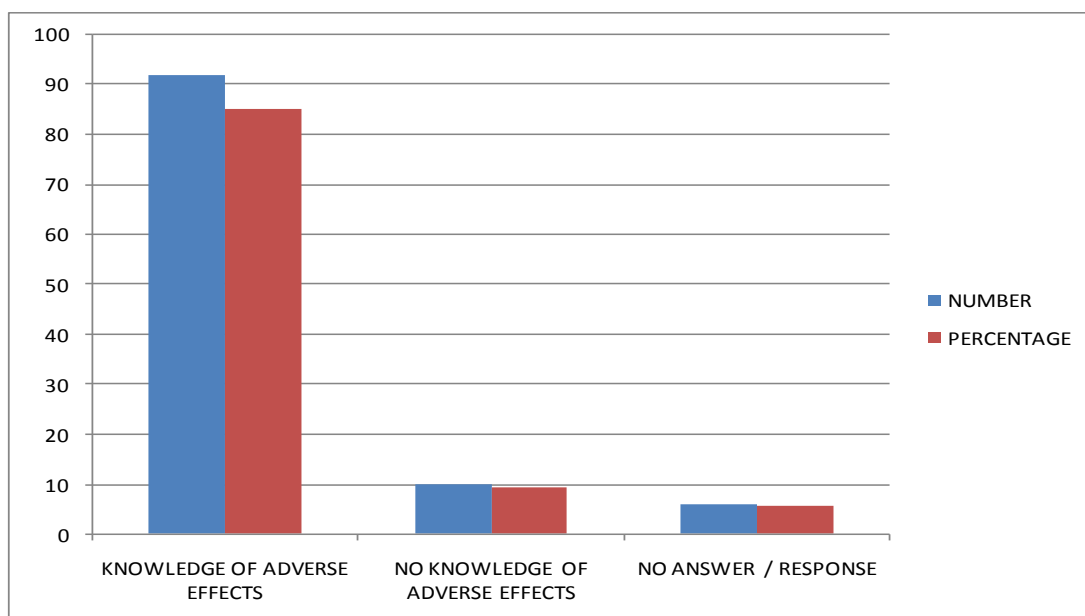


TABLE 6 -SHOWING WILLINGNESS TO RECOMMEND RADIOTHERAPY TO PATIENTS

S/N	WILLINGNESS TO RECOMMEND	NUMBER	PERCENTAGE
1	WILLING TO RECOMMEND IT TO OTHERS IF INDICATED	56	51.85
2	WILLING TO RECOMMEND IT IF NO OTHER ALTERNATIVE	24	22.22
3	WILL NOT RECOMMEND IT	18	16.66
4	NO ANSWER	10	9.25
	TOTAL	108	100

Only 56 respondents (51.88%) are willing to freely recommend radiotherapy to others when indicated.

FIGURE 5 - SHOWING WILLINGNESS TO RECOMMEND RADIOTHERAPY TO PATIENTS

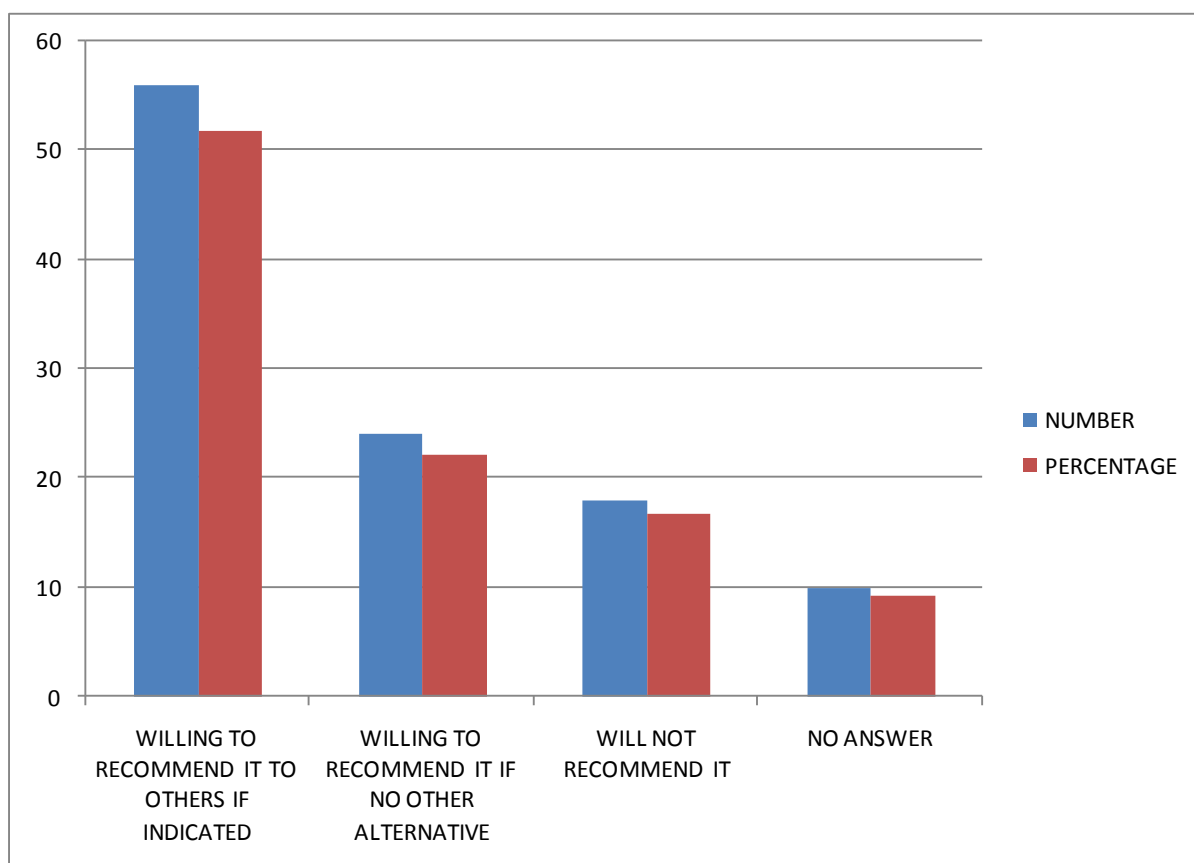


TABLE 7 - SHOWING THE PATTERN OF PERCEPTION AND ATTITUDE TO RADIOTHERAPY AS A MODALITY OF TREATMENT

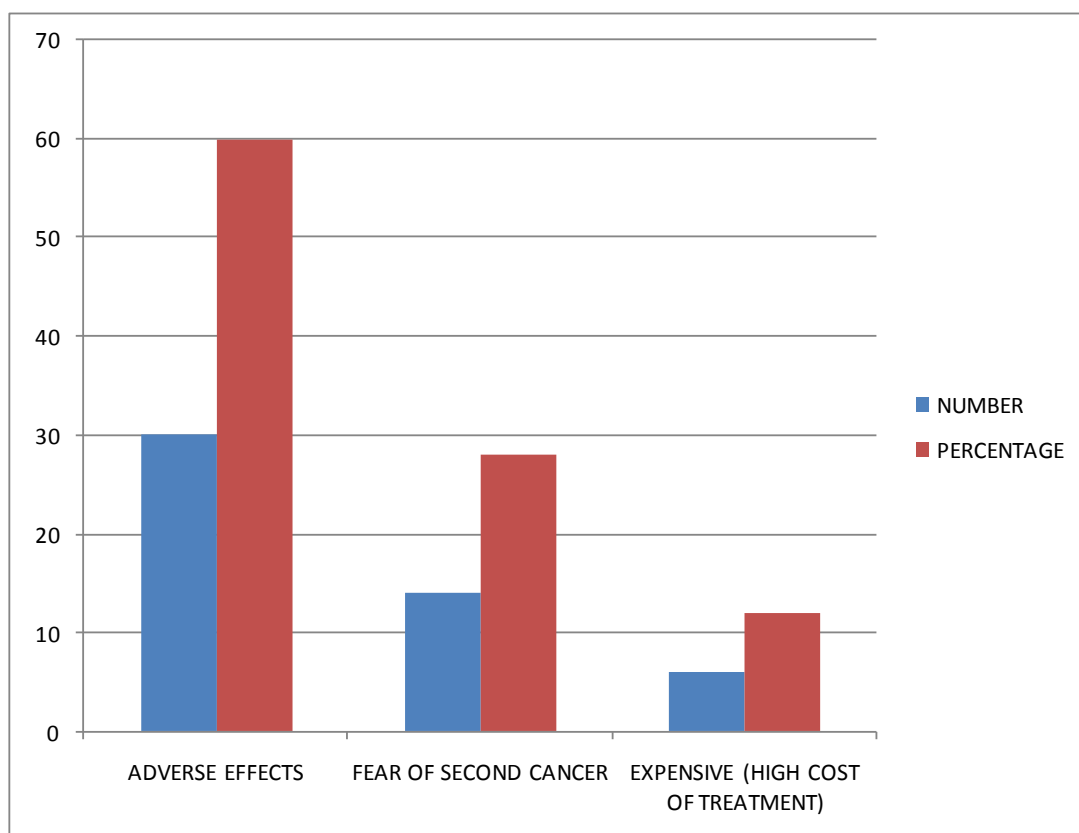
S/N	PERCEPTION AND ATTITUDE	NUMBER	PERCENTAGE
1	GOOD PERCEPTION AND ATTITUDE	56	51.85
2	POOR PERCEPTION AND ATTITUDE	50	46.2
3	NO RESPONSE	2	1.85
	TOTAL	108	100

For a group trained to become medical practitioners (healthcare givers), 51.85% good perception is not comfortable.

TABLE 8 -SHOWING REASONS FOR POOR PERCEPTION AND ATTITUDE

S/N	REASON	NUMBER	PERCENTAGE
1	ADVERSE EFFECTS	30	60
2	FEAR OF SECOND CANCER	14	28
3	EXPENSIVE (HIGH COST OF TREATMENT)	6	12
	TOTAL	50	100

FIGURE 6 - SHOWING REASONS FOR POOR PERCEPTION AND ATTITUDE



IV. DISCUSSION

Radiotherapy (RT) remains an integral and important modality of cancer management, especially organ confined and locally advanced stages.

Over the past few years, a lot of innovations and improvements have been made so as to reduce the incidence of adverse effects and therefore making it safer and increasing positive attitudes and perceptions.

Despite these efforts, public attitude and perception remain low.

More worrisome is the poor knowledge, attitude and perception of caregivers themselves.

In our work involving 108 final year medical students, all of them 108 (100%) had heard and known about radiotherapy (RT) but only 56 (51.85%) had heard and known about external beam radiotherapy and only 44 (40.74%) had heard and known about Brachytherapy.

Only 56 (51.85%) were willing to recommend it to others if indicated while 24 (22.22%) were willing to recommend it if there is no other alternative modality of treatment.

About 50 (46.27%) had poor attitude and perception.

The most common reason for poor attitude was presence of adverse effects 30 (60%) out of the 50 students with poor attitude followed by fear of second cancer 14 (28%) and then high cost of treatment 6 (12%).

We found out that a great number of students had poor knowledge of the indications for RT and the nature of RT treatment modality.

In a work by Biswa Mohan et al on the Assessment of the Knowledge, Attitude and Exposure to Oncology and Palliative Care in Undergraduate Medical Students, they concluded that there is deficiency in cancer education in the undergraduate teaching programme in the author's institution and there were profound deficiencies in the knowledge of cancers, principles of radiotherapy treatment, palliative care and cancer prevention.

In a work by A. Arainz et al on the Knowledge and Understanding of Medical Students about RT and Palliative Care, they concluded that there is need to change the perception of palliative care and radiation therapy among medical students and teaching of radiotherapy should begin early in the undergraduate MBBS programme and should be mandatory for all.

In another work by A. Abdellah et al on the Assessment of Physician's Knowledge, Attitude and Practices of Radiation Safety at Suez Canal University Hospital, Egypt (2015), they concluded that physicians at the Suez Canal University Hospital had deficient knowledge, unsafe practices and negative attitudes towards radiation safety policies and precautions.

In another work by S. MCC Loskey et al on National Survey of Perceptions of Palliative Radiotherapy: Role, Barriers and Needs, they concluded that although multiple barriers limit optimal integration, most agree that there should be a greater national and professional society effects to promote the advancement of radiation oncology in the area of palliative care.

Beliefs regarding RT are influenced by a multitude of factors encompassing demographic, socio-economic, cultural and healthcare related matters but adequate knowledge and positive attitude and perception of caregivers will go a long way in effecting positive public attitude and perception.

V. CONCLUSION

Knowledge, attitude and perception were poor among the final year medical students who had less than a year to become Medical Doctors. As major caregivers, it is mandatory to have good knowledge of RT and good attitude and perception so as to improve public and patient perception of RT.

VI. RECOMMENDATIONS

- 1) Medical schools should create a curriculum and period devoted to teachings on cancer management and modalities of management, including radiotherapy, chemotherapy, hormonal therapy and targeted therapy to enable them have good knowledge in dealing with cancer patients.
- 2) All other caregivers involved in cancer management should undergo courses from time to time to update their knowledge and skill in cancer management.

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