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RESEARCH ARTICLE

KNOWLEDGE AND AWARENESS OF RADIOGRAPHY PROFESSION AMONG SENIOR SCIENCE SECONDARY SCHOOL STUDENTS IN BAUCHI METROPOLIS, NORTH EASTERN NIGERIA

IBRAHIM SA'IDU HARUNA¹, MUHAMMED NJITTI¹, DLAMA ZIRA JOSEPH², ITOPA RICHARD³,
CHINEDU OBETTA⁴

1. DEPARTMENT OF MEDICAL RADIOGRAPHY, UNIVERSITY OF MAIDUGURI, NIGERIA

2. RADIOLOGY DEPARTMENT ABUBAKAR TAFAWA BALEWA UNIVERSITY TEACHING HOSPITAL BAUCHI, NIGERIA

3. DEPARTMENT OF RADIOGRAPHY, BAYERO UNIVERSITY KANO, NIGERIA

4. DEPARTMENT OF RADIOGRAPHY AND RADIOLOGICAL SCIENCES NNAMDI AZIKIWE UNIVERSITY AWKA, NIGERIA

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*Corresponding Author

Ibrahim Sa'idu Haruna

Abstract

Background: knowledge and awareness of radiography profession among senior science secondary schools students in Bauchi metropolis North-eastern Nigeria

Aim: The aim of the study is to assess the level of knowledge and awareness of radiography profession among senior science secondary school students in Bauchi metropolis

Materials and Methods: The study was carried out in four secondary schools in Bauchi. A 13 item self structured questionnaire was used to collect the data, the questionnaire contained four parts and 13 questions in all. 191 Students voluntarily consented and filled the questionnaire. 50 students of senior science secondary two and three were recruited from each school. The questions were to explore among other students knowledge about radiography, awareness, parental influence and career guidance generally. Descriptive statistics were generated from the collected data using Statistical Package for Social Science (SPSS) version 16.0.

Results: A total of 191 respondent filled and returned their questionnaire with a response rate of 83.1%. More than half of the respondents representing 56.5% were male and 43.5% were female and 52.9% of the respondents were between 17-18 years. Majority 62.8% of the students were not familiar with radiography. A total of 70.7% of the students had no knowledge about radiography and 84.8% knew about x-rays. A total of 95.3% and 59.7% agreed that career education and parental guidance is important to their future respectively.

Conclusion: The study showed that Awareness about Radiography among senior science secondary schools students in Bauchi metropolis was not encouraging with many of the students possessing little knowledge about Radiography even though they might have heard about it. Students agreed that career education is important to their future and Parents/guardians also influence career choice for their children.

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INTRODUCTION

Radiography is broad term that covers several types of studies that require the visualization of the internal part of the body using x-ray techniques. It also means the technique for generating and recording x-ray pattern for the purpose of providing the user with a static image. Radiography may also be used during the planning of radiation therapy treatment^{1,18}. Awareness as the defined by oxford advanced learners dictionary means to have knowledge of something, especially current events²⁹.

The quest for career awareness begins to manifest mostly during the late teenage years as high school students become conscious of their social expectations and begin preparation for career exploration^{3,8}. Preparation for career exploration according to Herr and Johnson (1989)¹⁵ require that students actively seek out information about alternative choices; learn about their own skills, attitudes, values, and interests; and discover educational and career opportunities¹⁵.

Awareness is a state of consciousness; it involves bringing to memory forgotten information, acquiring new information, listening to a lecture, reading books and conversation with others in order to enlighten them²³. Awareness of a career in Radiography provides information to senior science students which will be useful to enable them to make decision informed about career choices. Modern theories of carrier awareness and development began in the 1950's, the concept was to make development a more comprehensive view of individual and their occupational development over the life span^{12,13}.

It has been revealed that the absence of counseling and awareness creation in secondary school are the major contributing factors to low Nigerian students participation in programmes like radiography, engineering, and others professional courses³. The United Kingdom; (Council for Education Policy, Research and Improvement CEPRI 2004)⁷, has identified that awareness on career and professional education as a primary area where increase focus, resources and new approaches would produce a very significant improvement in the quality and effectiveness of the education system⁷. Kathy, (2008)²⁰, found that awareness activities help to expand student understanding of the word of work by identifying the career pathways and specific occupation that meet their interest and values, awareness also helps to locate and research information about specific occupation, develop on initial understanding of education and training requirements, understanding the changing nature of a career due to technological advances and its impact on the global economy. Therefore, the aim of this research is to assess the level of knowledge and awareness among secondary school students toward Radiography profession as well as to determine means of creating a greater awareness among secondary school student toward it.

The Student is expected to be conscious of his or her personal value, interest, weakness and strength and the forces of society to enable them have a panoramic approach to his or her choice in life. The aim of career awareness are to contribute to the imprison achievement and prosperity of individuals and communities^{8,9}. Catty and Sample (2001)⁶, stated that carrier awareness devoid of counseling may not yield the needed result⁶. Awareness services should focus on helping students to compare his or her strength, value and interest with the value risk, qualification and requirement of occupation the individual wishes to pursue¹⁰. Radiography profession should be one that individual will like to pursue and will be happy practicing all his life time because of high quality carrier opportunity¹². UNESCO (2008)³⁹ states that Career awareness puts student on the right education to enables them to achieve their goals by choosing a course that is related to the profession one wishes to pursue help, this helps in the promotion, increment, and overall self development of the individual Career education³⁹. Career guidance is seen as having a key role in preventing inflows into unemployment, particularly long time unemployment³⁹. It has been stated that introduction of career awareness into tertiary institution has been observed as necessary to prepare student and equip them with the requisite skills required to enter into both private and public sector and run a successful business^{12,39}. Such awareness is necessary to stream line student's interest towards what they are capable of doing and help to reduce graduate unemployment and accelerate national development³

RESEARCH METHODOLOGY

This research work is a prospective cross-sectional descriptive study. Primary source of data was used for the study. A census population of senior science secondary school students from four major secondary schools participated in this research. A convenient sampling technique was use for the study. Subjects included in this study comprises of second year to third year senior secondary school students in Bauchi metropolis, those that could not meet the criteria are all non- science senior school students, Junior secondary school from year one to three, all teaching and non teaching staff. A 13 item questionnaire was adopted for the study. Data was analyzed using statistical package for social sciences(SPSS) version 16.0 .Descriptive statistical tools was used to organize and analyze data and results was expressed in frequency and percentages. Ethical clearance was obtained from the Ministry of Education Bauchi, and the Principals of various secondary schools in which the research was carried out

RESULTS

DEMOGRAPHIC RESULT

A total of 230 questionnaires were distributed and 191 were retrieved, representing response rate of 83.1%. One hundred and eight (56.5%) of the respondents were males and eighty three (43.5%) were females. One hundred and one (52.9%) of the respondents fall within the age range of 17 to 18, seventy two (37.7%) are within the age range of 15 to 16, fourteen (7.3%) are within the age range of 19 and above and only four (2.1%) of the respondents are within the range of 13 to 14 years (with mean age 17 years). Senior science secondary school students of year two have the highest respondents of one hundred and thirty six (71.2%) followed by the third year senior science secondary students with fifty five (28.8%) are shown in Table 1 below:

TABLE 1; DEMOGRAPHIC RESULT

DEMORGRAPHICS	Variable	Frequency	Percentage %
SEX	Male	108	56.5
	Female	83	43.5
	Total	191	100
AGE(years)	13-14	4	2.1
	15-16	72	37.7
	17-18	101	52.9
	19-above	14	7.3
	Total	191	100
CLASS	SS 2	136	71.2
	SS 3	55	28.8
	TOTAL	191	100

ASSESSING KNOWLEDGE ABOUT RADIOGRAPHY PROFESSION AMONG SENIOR SCIENCE SECONDARY SCHOOL STUDENTS.

Only fifty six (29.3%) of the total respondent agree to have knowledge about Radiography while the majority i.e. one hundred and thirty five (76.7%) of the students have no knowledge about Radiography. It is seen that fifty six (29.3%) of the respondents rightly believed that Radiography involved using ionizing radiation for the diagnosis and or treatment of diseases while 22(11.5%) wrongly believe otherwise and majority of the respondents i.e. one hundred and thirteen (59.2%) don't actually have knowledge of what the profession Radiography means. Majority of the respondents i.e. One hundred and sixty two (84.8%) have knowledge about x-ray whereas only twenty nine (15.2%) of the respondents don't have knowledge about x-rays as shown in the Table 2 below.

TABLE 2; KNOWLEDGE ABOUT RADIOGRAPHY

KNOWLEDGE	VARIABLE	FREQUENCY	PERCENTAGE %
Do you have knowledge about radiography	Yes	56	29.3
	No	135	70.7
	Total	191	100

Radiography involves using ionizing radiation for diagnosis and treatment of disease.	Yes	55	29.3
	No	22	11.5
	Don't know	133	59.2
	Total	191	100
Do you have knowledge about x-rays	Yes	162	84.8
	No	29	15.2
	Total	191	100

ASSESSING AWARENESS OF RADIOGRAPHY PROFESSION AMONG SENIOR SCIENCE SECONDARY SCHOOL STUDENTS.

It is also seen that only seventy one (37.2%) of the student are aware of Radiography profession while majority of the respondents i.e. One hundred and twenty (62.8%) are not aware of Radiography as a profession. Out the seventy one (37.2%) of the students that are aware of Radiography profession, Twenty (10.5%) of the respondents agreed that they became aware of the profession through a career talk, twenty five (13.1%) through the media, twenty six (13.1%) through a Radiographer they met and only two (1.0%) students through other means. About seventy five (39.3%) of the respondents are aware of the job a Radiographer does in the hospital (dispense radiation), Eighteen (9.4%) go for blood test, Only Six (3.1%) go for Drug administration and majority n=92 (48.2%) are not aware of the job a radiographer does in the hospital.

TABLE 3 .AWARENESS ABOUT RADIOGRAPHY

AWARENESS	VARIABLE	FREQUENCY	PERCENTAGE %
Have you heard of Radiography profession	Yes	71	37.2
	No	120	62.8
	Total	191	100
If Yes, how did you hear about it.	Never heard of it	1	0.5
	In the media	19	9.9
	In a career talk	25	13.1
	Through a Radiographer I met	26	13.6
	Others	2	1.0
	Total	73	38.2
What job does a Radiographer does in the hospital	Dispense radiation	75	39.3
	Blood test	18	9.4
	Drug administration	6	3.1
	None of the above	92	48.2
	Total	191	100

ASSESSING THE IMPORTANCE OF CAREER EDUCATION AND PARENTAL GUID TO SENIOR SCIENCE SECONDARY SCHOOL STUDENTS IN CAREER CHOICE

Majority of the respondents i.e. One hundred and nine (53.4%) agreed to have participate in a career education while eighty nine (46.6%) of the students have never participated in any career education (Fig 5). Almost all the respondents i.e., One hundred and eighty two (95.3%) agreed that career education is important to their future, Three (1.6%) chose NO while Six (3.1%) don't know. When ask "if their parents /guardian influence their choice

of course”, One hundred and fourteen (59.7%) unsurprisingly say “YES”, Seventy five (39.3%) said NO and only Two (1.0%) ticked the I “don’t know” option.

Majority of the respondents when asked “if they want to become radiographer in the future” sixty three (33.0%) of the students chose “YES”, One hundred and ten chose “NO” and Eighteen (9.4%) ticked the I “don’t know” option as well.

TABLE 4; CAREER EDUCATION AND PARENTAL INFLUENCE ON CAREER CHOICE OF COURSE

CAREER CHOICE	VARIABLE	FREQUENCY	PERCENTAGE %
Have you participated in any career education generally	Yes	102	53.4
	No	89	46.6
	Don't know	0	0.0
	Total	191	100
Do you agree that career education is important to your future	Yes	182	95.3
	No	3	1.6
	Don't know	6	3.1
	Total	191	100
Does your parents/guardian influence your choice course	Yes	114	59.7
	No	75	39.3
	Don't know	2	1.0
	Total	191	100
Would you like to become Radiographer in future	Yes	63	33.0
	No	110	57.6
	Don't know	18	9.4
	Total	191	100

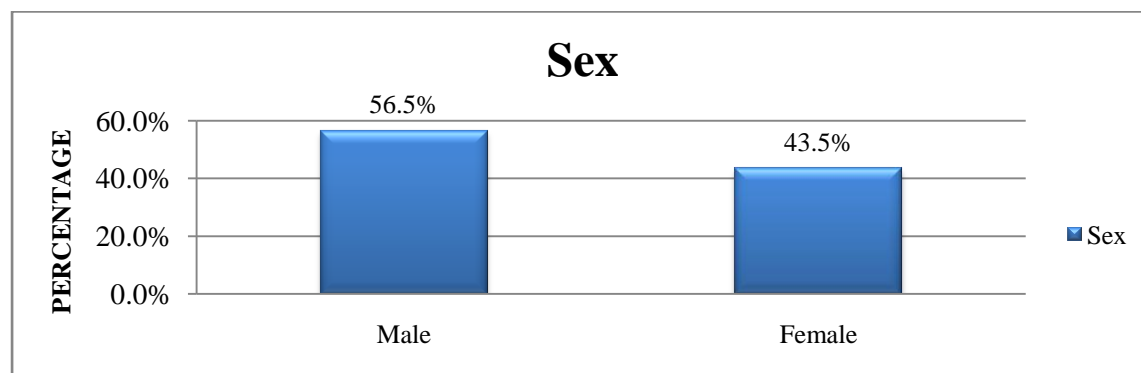


FIGURE.1 THE FIGURE ABOVE SHOWS THAT MORE THAN HALF OF THE RESPONDENTS WERE MALES (n=108)56.5%.

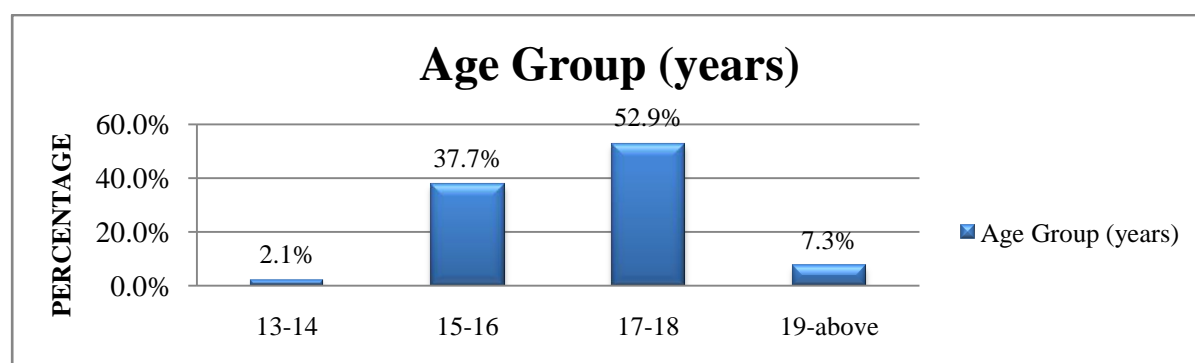


FIGURE 2 AGE GROUP OF RESPONDENTS: Of the one hundred and ninety one respondents, majority 52.9% (n=101) were between 17-18 years.

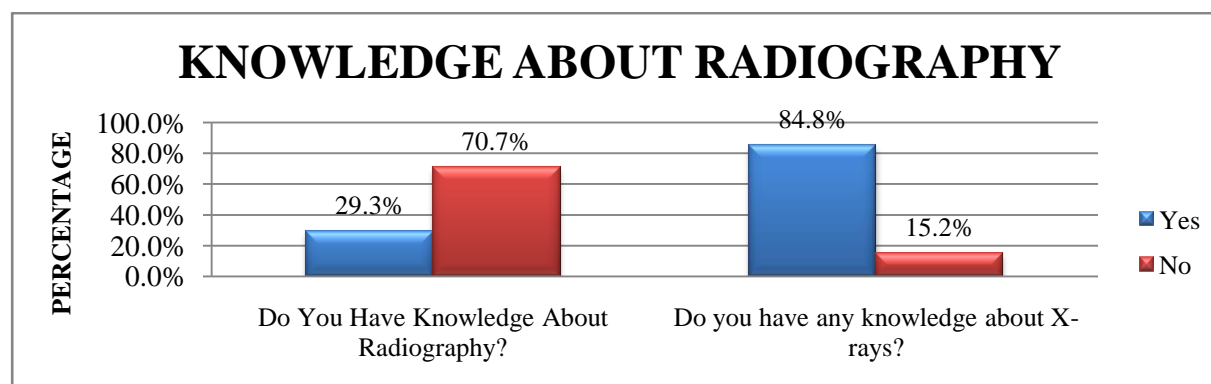


FIGURE 3 The figure above shows that 70.7% (n=135) of the students had no knowledge about Radiography and 84.8 % (n=162) had knowledge about x-rays

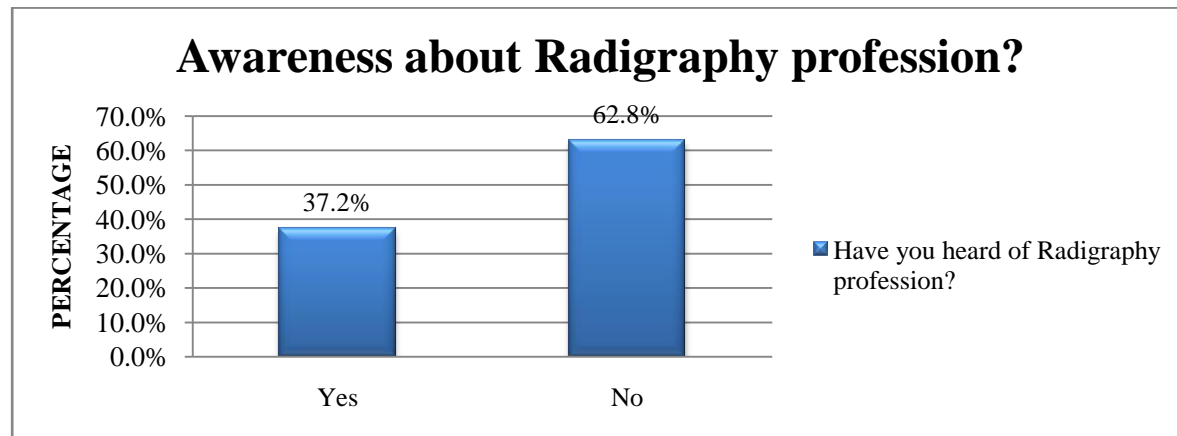


FIGURE 4: showing the response of students that are aware of Radiography profession.

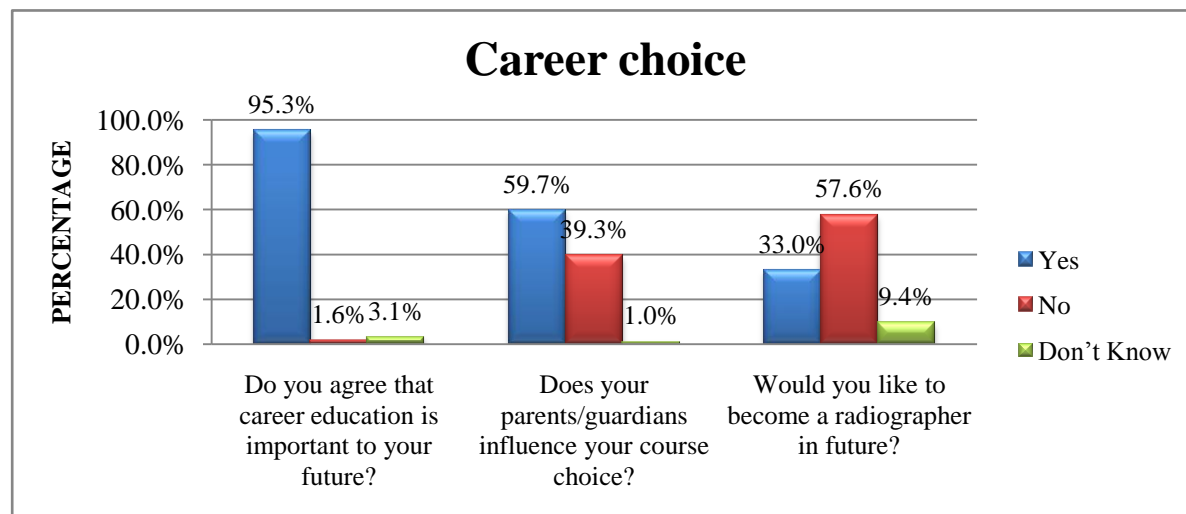


FIGURE 5 CAREER EDUCATIONS AND PARENTAL INFLUENCE ON CAREER CHOICE OF COURSE

DISCUSSION

The focus of the study was to explore whether there is awareness of Radiography profession among senior science secondary school in Bauchi metropolis. It was observed that the complexity of Self-will and Societal-will influence determines the choices of students, the study also looked at several factors including parental influence on career development. Their perception of radiography was accessed and whether radiography information was readily available to students. Their gender as career influence was also looked at.

Age and gender influence on career choice were presented in Table 1, Fig 2 and 3. The results of the study 57% males and 43% females with mean age of 17 years, 53% of the students were between 17-18 years of age (Table 1, fig 2 and 3). While differences in age did not impact on career choice, the findings indicated gender influence on career choices. Females were never willing to pursue radiography but fewer 25.6% males responded positively to take up radiography career. The negative response from the females may have resulted from gender. Some females have relatives who work or had worked at radiology departments in Bauchi, and who may have offered personal advice, however the psychological impact of gender stereotyping may have highly printed on their memory and played a key role in their career path. Students' exposure to norms that categorize male and female occupations may explain the gender radiography choice.

Knowledge about radiography is vital. The objective of this section was to find out whether students know that Radiography and x-rays are synonymous. Radiography is the technical word used in academia. The concept of radiography encompasses broad spectrum radio waves and not limited to x-rays as anticipated, 70.6% of the

students had no familiarity with the word Radiography compared to 84.8% of the students that know x-rays, (Tables 3 and Fig 3). This is because the word radiography' was not commonly used among the students as compared to the word 'X-rays'. Most students learnt about x-rays in books, classrooms and at the hospital through their encounter with x-ray radiographs. This is similar to another findings in Nigeria that even though some the student have heard about the profession, but the level of their knowledge was indeed very poor even among those who receive career talk in radiography³⁵. These may contribute to the causes of wide-spread knowledge about x-rays as compared to Radiography and Radiology.

Teachers and career Counselors in senior high schools play significant role not only to provide guidance services but also to give information about the various career programs available to students to pursue including radiography. Though majority of the students said their school has no career counsellor, counsellors may lack knowledge about a course therefore may not be able to educate students^{25,35}. Moreover, Radiography and Radiology may not have been aggressively advertised hence its low image in the minds of the general public. The findings of the study indicate that about 59.2% (Fig 3.) of the students don't know the meaning of the word Radiography even though they might have heard about it somewhere. Institutions that run radiography program in Nigerian University and association Of Student Radiographers may not have undertaken any awareness about the newly introduced radiography course to create awareness for radiography. The Nigerian Society of radiographers also may not have carried out any extensive education on the profession. As Kotler (2002)²² noted, brands, services and organizations heavily promoted (advertised) creates product or service awareness in the mind of individuals.

Information is an important tool necessary for strategic decision making. Successful career development is significantly dependent on quality and quantity of information. Students are expected to seek broad spectrum information to enable them make satisfying career choices. Radiography though a valuable profession in western countries, lacks recognition in Nigeria because radiographers in Nigeria had not educated the populace on its prospects. This may explain student's reluctant to enquire about radiography. Based on the findings 62.8% are not aware of Radiography profession; fewer had ever sought information about radiography (Table 3 and Fig 4). Radiography though a valuable profession in western countries, lacks recognition in Nigeria because radiographers in Nigeria had not educated the populace on its prospects. This may explain student's reluctant to enquire about radiography. The findings of the study show that 48.2% of the students had no idea what actually a radiographer does in the hospital. (Table 3). This could be due to the inadequate awareness campaign by the Association of Radiographers of Nigeria and the practicing Radiographers to educate these young people enough on the prospect of the profession.

Such career awareness activities usually occur outside of school such as professional 'talk' on television and radio. This demonstrates student's preparedness to assess career information.

Parents are usually the primary point of contact with students and functions to provide first hand career information and determine career paths for their children. In some societies in Nigeria, families sets themselves apart as high class citizens motivate their children to pursue programs the society recognizes to command dignity and prestige in order to maintain that high social status. From the study, 59.7% of the students agree their parents/guardians have influence on their choice of course (Table 4 and Fig 5). However there could be other courses/programs to which their parents or relatives are fully aware of such as Medicine, Law and Engineering. Parental functions such as modelling, inspiration and building student's work value and character are necessary factors in shaping children's career life; however parental counselling lacking consideration of children's interest and value jeopardizes the student's life. The findings of this study are consistent with that of Olayinka (1993)³² who stated that high school students acquire career information from other family members as affirmed by 41% of the study respondents, while 35.5% consulted their parents.

The concept of education is to build the capabilities of students to suite current developmental agenda of every nation including Nigeria. This is why there has been and would always be educational reforms to create a bridge between industrial demand and educational curriculum. It is also to tailor student's values and interest to the values and demand of industry. Career guidance and counselling was established to service the engine of growth in releasing the concept^{20,21}. Career awareness is one of the services necessary to fuel this engine. The findings of the study show that 53.4% of the students had participated in one or more career awareness seminars (Table 4). Moreover, 30% of final year senior science secondary school students in Bauchi metropolis are ignorant about career counsellor in secondary schools. This reflects poor guidance and services in our secondary school in Bauchi state of Nigeria. Most career guidance and counsellors are full time teachers therefore they concentrate more on teaching than career awareness activity. High quality career guidance and counselling programs would promote improved course selection for students and will benefits the nation, learners and institutions (UNESCO, 2008)³⁹.

Quality information may be useful when it is channeled through the right medium to listeners. The media could be career talk, television, newspaper, magazine, professional radiographer 'talk' or the internet. Professional 'talk' is most effective to provide accurate information and to elicit the desired conviction from students because it conveys some sort of professional credibility. The outcome of the study indicate that for the students that are aware of radiography as profession, 13.1% became aware of it through the media which is actually the most available means of information to many students. This reflects inadequate knowledge of career awareness experts in most career professions²³. This may be the reason why majority 48.2 % (Table 3) of the respondents are actually not aware of the responsibility and job description of a radiographer .Professional Radiographer's involvement could be useful to the fact that students may need answers to many doubts like lack of academic progression in the profession and exaggerated radiation hazards to radiographers that students might have heard about. A study revealed that individuals would respond favorably to messages that would help alleviate their fear if they feel undertaking such practices would affect them. The presence of a radiographer may be necessary to erase student's illusions about the profession because individuals are likely to heed the advice of experts³⁰. Professional and student radiographers should make their expertise more available by sharing their experiences with the general public through professional talk. Moreover, attempts could also be made to reach out to students through internet and sanitization programmes.

CONCLUSIONS

Majority of students in senior science secondary schools in Bauchi metropolis have little knowledge about Radiography. It could be due to the fact that only three institutions offers the Bachelor Radiography programme in Northern Nigeria. Awareness about Radiography among senior science secondary schools in Bauchi state was not encouraging due to lack of publicity by both the Radiographers and the Association of Radiographers of Nigeria. Majority asserted that they would not pursue radiography even if they are educated about its prospects because their doubts about Radiography have not been answered. Similarly, the quality of information about radiography was poor particularly due to ill-informed career counsellors. Parents also unduly influence career choice for their children. Parents are informed about the dangers of Radiation therefore urge their children not to pursue this course or may want to maintain high social class. There is also wide-spread misconception about Radiography that lingers in the minds of students due to ill-information.

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