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An Assessment of Adherence to Professional Ethics and Practices among Medical Radiographers in Lagos State, Nigeria.

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ABSTRACT

Background: Radiography practice integrates scientific knowledge and technical skills which has to be complemented by regular exercise of sound professional and ethical judgment in order to ensure quality patient care and acquisition of useful diagnostic information. This study investigated the extent of adherence to professional ethics and practices by practicing radiographers in Lagos state, Nigeria.

Methodology: A structured, self administered questionnaire was randomly distributed to two hundred practicing radiographers in various public and private healthcare facilities in Lagos state. The respondents were broadly assessed on ethical handling of patients, adherence to continuous professional development & training, and participation in other professional responsibilities. The completed questionnaires were verified and corroborated by substantiated proof of claim by each respondent. Data analysis was by a statistical software Epi-Info.3.5.1 version.

Results: Majority (85%) of the respondents rated ethical handling of patients excellent. However, none of the respondents had regular implementation of quality assurance on their equipments while only 28.8% of the respondents attended at least one mandatory continuous professional development programme within the past one year. The adherence of the participants to other evaluated professional and ethical issues was found to be 51.6%.

Conclusion: The adherence of Radiographers to professional ethical handling of patients was rated excellent. However, implementation of quality assurance programmes on equipments and adherence to continuous professional development were grossly low. It is recommended that efforts towards increased emphasis on the importance of practitioner adherence to professional/ethical issues during training in continuous development programmes, conferences, seminars and short courses or direct enrolment in further postgraduate degrees, be intensified.

INTRODUCTION

A profession arises when any trade or occupation transforms itself through "the development of formal qualifications based upon education, apprenticeship, and examinations, under the regulation of a body statute, with powers to admit and discipline members, and some degree of monopoly rights."[1] Therefore the cornerstones of a profession are: a code of ethics, a body of knowledge, research, credentials, continuous professional development, individuals that consider the profession their lifelong occupation and external recognition as such. [2]

The concept of professionalism is multifaceted and may be divided into 3 categories: professional parameters, professional behaviours, and professional responsibilities.[3] Professional parameters include legal and ethical issues, while professional behaviours refer to discipline-related knowledge and skills, appropriate relationships with clients and colleagues and acceptable appearance and attitudes. Professional responsibilities include responsibility to the profession and to oneself, clients, employers, and community.[4] Thus professionalism can be said to mean behaving in an ethical manner while assuming and fulfilling ones rightful responsibilities in every situation every time, without fail.[5]

Radiography integrates scientific knowledge and technical skills with effective patient interaction to provide quality patient care towards acquisition of useful diagnostic information. [6] This requires the services of a professional- a radiographer who is described as a practitioner, who performs the examinations that creates the images needed for diagnosis in accordance with established protocols and guidelines.[6] According to *the Health Act 1999*, radiography has assumed a professional status.[7] This automatically carries the statutory requirement to regulate professional practice for the protection of patients accessing the service and for their careers.[7] Thus radiographers shall maintain knowledge about radiation protection and safety principles, implement these principles and use professional and ethical judgment when performing their duties.[6] For the interest and total safety of the patient, best professional and ethical practices are to be observed in the practice of diagnostic radiography. These ethical practices concern radiographers' conduct or behaviour, as well as practices at work. It is common with many professional bodies to introduce codes of conduct and codes of practice for their members to observe, and to enhance the image of the profession they practice[8]. The Radiographers' Registration Board of Nigeria (RRBN) is not left out in this regard[9], though a review and more comprehensive version is expected. Radiographers' specific expertise is related to imaging (X-rays, nuclear medicine, ultrasound and MRI examinations), radiation protection as well as radiation surveillance[8].

Some of the basic ethical principles in Radiography practice includes beneficence, which require that

radiographers should act in the best interest of the patient; autonomy, the patient has the right to refuse or choose their treatment; justice, which concerns the distribution of scarce health resources, and the decision of who gets what treatment, that is, patients should be treated in fairness and equality; respect for persons, the patient and the radiographer have the right to be treated with dignity.[9] Other prescribed principles according to RRBN include utmost confidentiality, comportment, dressing and general conduct[9]. Radiographers, thus must exhibit a wide range of characteristics, attitudes, and behaviour as well as lifelong commitment to professionalism: education and training.[4] Thus radiographers should be vast in knowledge about radiation protection and safety principles, and competent in skill to implement and use professional and ethical judgment when performing their duties.[6] These virtues are currently under treat in Nigeria. Career choice is now mostly based on probability of immediate employment on graduation and no longer on passion and personal disposition. Radiography is attracting many of such aspirants, thereby putting professionalism at risk. This study therefore investigated the extent of adherence to professional ethics and practices by active, practicing radiographers in Lagos state, Nigeria.

Methodology: The research was a descriptive, cross-sectional survey which was designed to assess adherence to professional ethics and practices among radiographers in Lagos state. A structured questionnaire was distributed by convenient random sampling, to two hundred radiographers in various public and private healthcare facilities in Lagos state. The Radiographers were those in active clinical practice and full-time employment. Industrial Radiographers in oil exploration, Airport screening and those not in active clinical practices were excluded in the study. The questionnaire comprised 33-open and 1-closed ended questions for the survey. The questionnaire was designed to elicit information from the respondents in four sections: Section A: Demographic information, Section B: Ethics of patient handling, Section C: Continuous professional development/Training, Section D: General Professional Responsibilities. In the demographic section the following information were sought: age, gender, religion, marital status, highest educational qualification, current place of work and years of active professional practice. On the ethical issues concerning patients' handling, the questionnaire was designed to determine the adherence of the respondents to:

i. effective explanation of procedures and communication of instructions to patients before commencement of radiographic examination.
ii. accurate identification and mode of verification of patients' identity before commencing radiographic investigations.
iii. seeking and mode of obtaining consent from patients before proceeding with a radiographic examination.

iv. confirmation or exclusion of possibility of pregnancy in females of child –bearing age.
v. periodic implementation of quality assurance programmes on equipments and materials used in the departments

The section on continuous professional development sought to elicit level of participation of the respondents on professional development programmes such as seminars, conferences, public lectures etc. Section D of the questionnaire assessed other responsibilities expected of a Radiographer as a health professional. The respondents were asked to rate their general perception of Radiographers' level of adherence, from *poor* to *excellent* in the following:

a. Compliance to departmental protocol in daily practice.
b. Devotion of time in teaching and mentoring of junior colleagues.
c. Participation as a volunteer in medical outreach programmes.
d. Relationship with other healthcare professionals in places of work.
e. Participation in interdisciplinary conferences in order to keep abreast of related professional development.
f. Professional esteem amongst other professionals in medical field, and
g. Ethical adherence to labour laws and principles of engagement and disengagement in employments; especially in the private sector.

Each respondent was required to objectively fill the questionnaire with assurance of strict confidentiality. Informed consent for the study was obtained verbally from each respondent. No identification of respondent was required which ensured anonymity. The data collected from the satisfactorily completed questionnaires was analyzed using the statistical software Epi-Info 3.5.1 version and shown in tables and charts.

Results

Overall response rate was 92.5%, as 185 of the total of 200 questionnaires shared were effectively filled and returned. The remaining 7.5% were either incompletely filled or misplaced by the prospective respondents.

As shown in table 1, majority (52.5%) of the respondents were below 31 years of age, while those between the ages of 31 - 40 constituted 27.5%. The respondents above 50 years of age were in the minority (8.8%). There were more females (55%) than males (45%) in the study sample (Table 1). Most respondents (52.5%) were Bachelor of Sciences (B. Sc.) degree holders. The rest were DCR/DIR (12.5%), PgD (26.3%), and Master of Sciences (M.Sc.) degree (7.5%). No respondent had a Ph.D during the period of the study.

1: Socio-demographic Presentation of the Respondents.

Socio-Demography	Frequency	Percent (%)
Age (years)		
20 – 30	97	52.5
31 – 40	51	27.5
41 – 50	21	11.3
>50	16	8.8
Total	**185**	**100.0**
Sex		
Male	83	45.0
Female	102	55.0
Total	**185**	**100.0**
Religion		
Christianity	141	76.3
Islam	44	23.7
Others	0	0.0
Total	**185**	**100.0**
Ethnic group		
Hausa	3	1.6
Igbo	46	24.9
Yoruba	120	64.9
Others	16	8.6
Total	**185**	**100.0**
Educational Qualification		
DCR/DIR	23	12.5
B.Sc	97	52.5
Pgd	49	26.3
M.Sc	14	7.5
PhD	0	0.0
Others	2	1.3
Total	**185**	**100.0**
Place of Work		
Teaching Hospital	67	36.3
General/Specialist Hospital	51	27.5
Private Clinic/Diagnostic Center	65	35.0
Others	2	1.3
Total	**185**	**100.0**
Years of Practice		
< 1year	35	18.8
1 – 5	67	36.3
6 – 10	44	23.8

11 – 15	23	12.5
16yrs and above	16	8.8
Total	**185**	**100.0**

Fig. 1: Effective Explanation of Instructions to Patients on Procedures

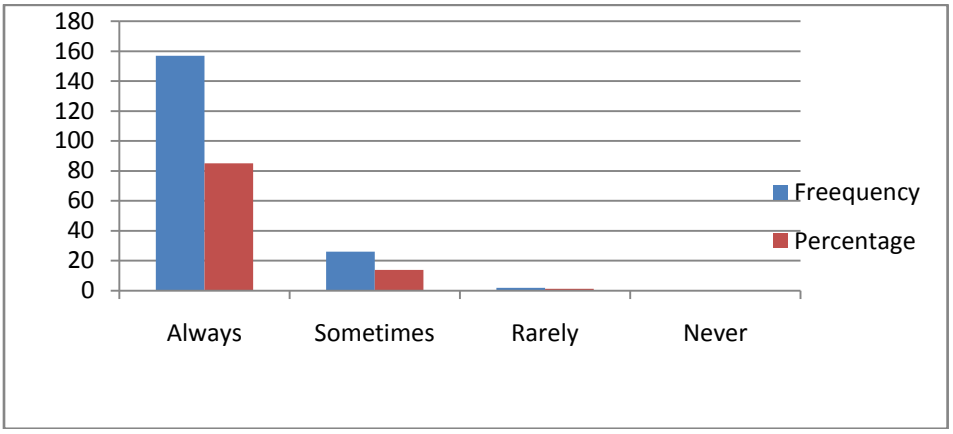


Fig. 2: Seeking Consent before Commencement of Radiological Examinations

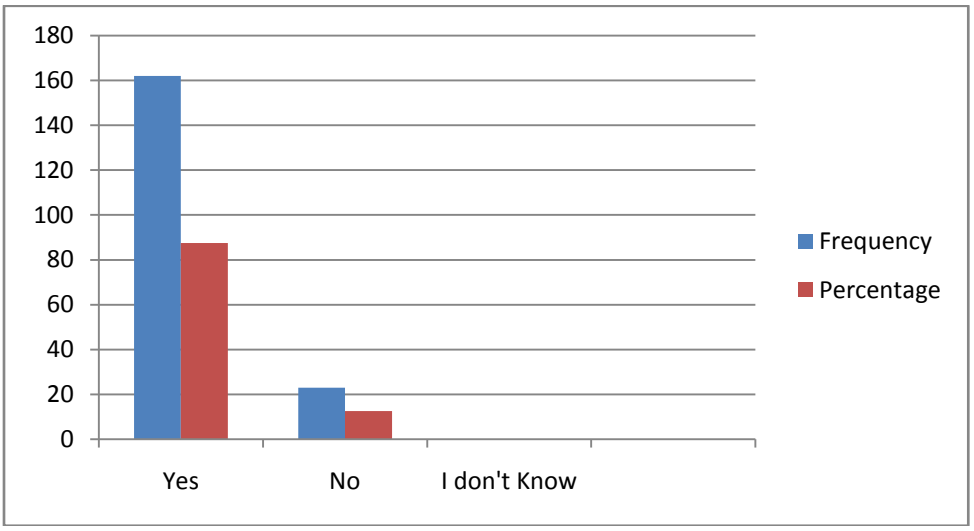
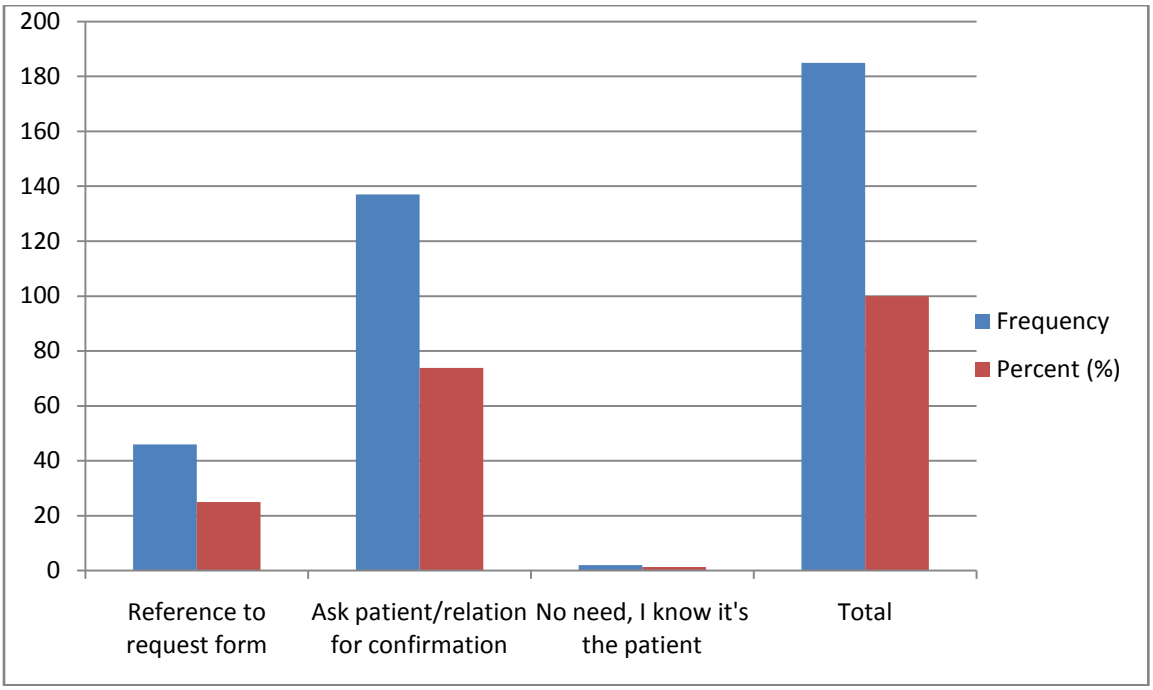


Fig.3: Methods of Verification of Patients Identity before Examination



On professional experience (table 1), 36.3% of the respondents had worked for between one and five years, 23.8% had worked for between six to ten years, whilst eleven to fifteen years were 12.5%. Only 8.8% had worked for over 15 years.

Responses showed that 85% of the respondents always explained and effectively instructed patients on the intended procedure before commencement of the examination. About 14% sometimes did (Fig. 1). From Fig. 2, 12.5% of the respondents did not seek consent before commencing radiological examinations. However, a greater number of the practitioners (87.5%) did.

On the issue of confirmation of patient identification prior to the commencement of the examination (shown in Fig 3), 73.8% of the respondents sought confirmation from patients or relations while 25% referred to the request forms instead. Majority of the respondents (88.6%) always confirmed if a female patient of child-bearing age was pregnant before X-ray examinations (Fig.4). About 10% of the studied population infrequently adhered to this requirement while 1.3% rarely did. Also 86.3% of respondents asked female patients for their Last Menstrual Period (LMP) to rule out pregnancy. A few respondents (11.3%) preferred to refer patients for pregnancy tests. A small group of respondents (2.4%) however opted to collimate to the region of interest.

Fig. 4: Confirmation of possibility of Pregnancy in Females of Child-Bearing Age

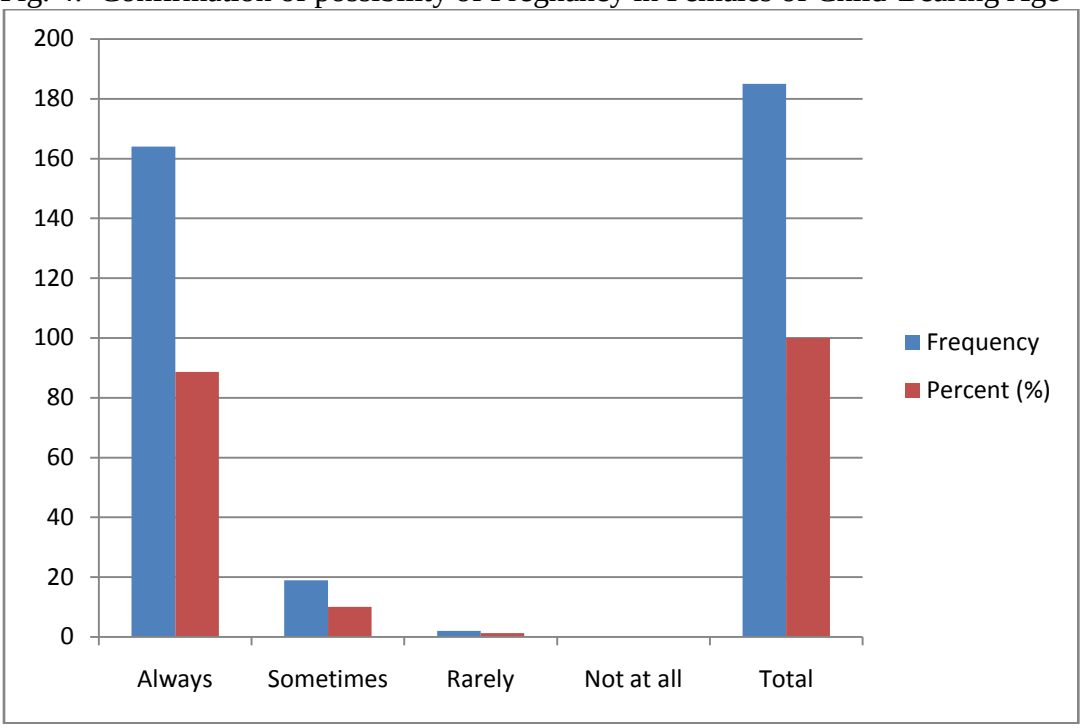


Fig.5: Last Time a Professional Seminar/Conference was attended

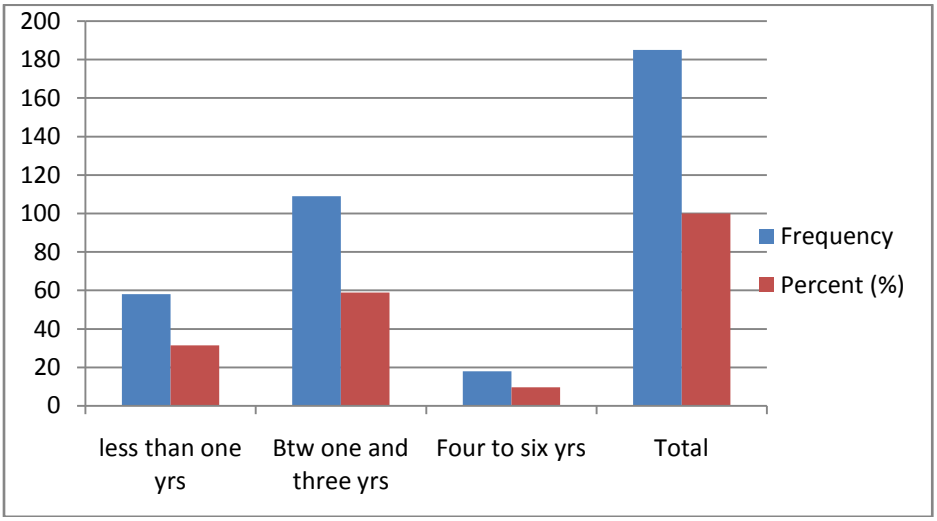


Table 2: Professional Responsibilities

Professional responsibilities	**RATING**				
	Poor	**Fair**	**Good**	**V. good**	**Excellent**
Compliance to departmental protocols by Radiographers in their daily practice.	9(5.0%)	2(1.3%)	21(11.3%)	26(13.8%)	127(68.8%)
Devotion of time and energy in teaching and grooming of junior colleague or student working with you.	-	12(6.3%)	23(12.5%)	83(45%)	67(36.3%)
Availability as a volunteer for medical outreaches or extra-curricular medical programs.	12(6.3%)	51(27.5%)	101(55%)	12(6.3%)	9(5.0%)
Your relationship with other professionals in the medical field.	-	7(3.8%)	38(20.3%)	95(51.9%)	45(24.1%)
Participation in inter-disciplinary conference in other to keep abreast of related professional development.	5(2.5%)	42(22.5%)	99(53.8%)	30(16.3%)	9(5.0%)
Your professional esteem amongst other Professionals in the medical field.	-	9(5.0%)	21(11.3%)	72(38.8%)	83(45%)
Radiographers' ethical compliance to labor principle of proper assumption of duty and resignation of appointment.	9(5%)	9(5%)	24(12.5%)	83(45%)	60(32.5%)
Level of encouragement/appreciation gotten from senior colleagues.	7(3.8%)	12(6.3%)	12(6.3%)	62(33.8%)	92(50%)

More than half of the respondents (67.5%) claimed to carry out periodic Quality Assurance procedures on all equipments and materials used in their departments, which were noted to be intermittent repairs, as there was no documented evidence. The rest neither claimed nor had any record of quality

assurance programme for their equipments On continuous professional development and training, only 28.8% of the respondents attended at least one professional development programme (PDP) within the past one year, while (57.5%) had attended one in 2 years preceding the study (Fig. 5). The rest could only boast of an average of a programme in five years.

Using a rating of *'poor, fair, good, very good, and excellent'*, the general perception of the level of adherence to certain professional responsibilities of Radiographers were evaluated (Table 2). The daily adherence to departmental protocols in the work place was rated excellent by 68.8% of the respondents. About 5% maintained that the adherence level was *poor*. Only 36.3% of the respondents thought that Radiographers' commitment to the teaching and mentoring of junior colleagues or students was excellent. Some (45%) agreed that it was just *very good.* Volunteerism in medical out-reaches or extracurricular medical programmes/community development was judged as *good* by 55% of the respondents, *excellent* by only 5% and *fair* by 27.5%. Inter-professional relationship was adjudged very good (57.9%), *excellent* (24.4%), and *good* (20.3%). On ethical compliance to labour principles of timely assumption of duty, absenteeism, resignation of appointment etc, about 45% of the participants felt radiographers' attitude was *poor* or *fair*(Table 2). Senior colleagues were seen to be involved in encouraging, appreciating and mentoring younger radiographers. This was revealed in the responses of about 50% of the respondents (*excellent).* An additional 33.8% rated this responsibility as very *good*, while 10.1% judged the relationship as *poor* or at best *fair.*

DISCUSSION

Radiography as a profession is guided by a corporate standard of behavior expected of the practitioners [10] . According to Chadwick [11], professional people and those in acknowledged professions exercise specialist knowledge and skill which in its course of discharge is governed by certain ways of conduct termed professional ethics[11]. Radiographers, therefore have ethical responsibility to patients they accept for imaging and treatment procedures and must act in a manner appropriate to the standard of care imposed by law and the profession[7,8] . The increasing demand for radiography services and the availability of different imaging modalities in Nigerian cities are increasingly tasking the Radiography profession, both in terms of the demand for quality services and in the overall workload on the practitioners. Naturally, this introduces a greater challenge in maintaining the expected professional ethical responsibility. The current study was carried out to assess the extent of adherence to professional ethics among radiographers. The study involved practicing Radiographers in government and private healthcare facilities in Lagos, Nigeria.

Majority of the respondents (52.5%), were below the age of 31 years (Table 1). This could be attributed to the increase in the number of young graduates of Radiography joining the workforce from some of the newly established University Radiography programmes in the country. Only 8.8% of the respondents were above 50 years. The lower number of respondents with increasing age range may in addition to the above, be attributed to greater involvement of senior Radiographers in administrative rather than and clinical roles.

Radiographers with only Bachelor of Science (BSc.) degree were in the majority (52.5%). No respondent had a Doctor of Philosophy (PhD) degree at the period of the study. This is in agreement with a study by Ohagwu et al [12], which revealed that there is paucity of radiographers with relevant postgraduate qualifications. Where these existed, they were mostly in the academia.

At least 36% of the respondents had worked for 1 to 5 years. Some 24% had 6 to 10 years work experience while 8.8% had worked for over 15 years (Table 1). This is equally explainable by the involvement of more experienced radiographers in administration and less of active clinical practice. The predominance of the younger grade practitioners in this study could also account for the level of adherence to some ethical issues due to limited experience (Table 1).

On the ethical requirement of explaining procedures to patients (Fig.1), the study revealed that majority of the respondents (85%) gave full prior explanation and effective instructions to patients before starting the procedure. This is in keeping with the fact that Radiography practice integrates scientific knowledge, technical skill and effective interaction in order to provide quality patient care and useful diagnostic information[10]. The adoption and continuous utilization of this practice is encouraged as it has been found to increase the likelihood of patients' cooperation, reduce the incidence of repeated radiographs, and therefore, the radiation dose to patients.[8]

One other ethical issue examined was the concept of seeking and obtaining the consent of a patient before carrying out any procedure. It can be seen (Fig.2), that while over three quarters of the practitioners always sought a patient's consent before any radiographic examination, howbeit verbal, at least one out of ten radiographers would not do this. The underlying reason for this unethical attitude by this category of respondents could not be established in this study and may be a subject for further evaluation. The patient has the right to be properly informed about procedures to be carried out. Seeking consent helps to determine what the patient wants, and is a sign of respect for the patient's autonomy[8]. The Radiographer is equally cleared of any legal implications that may arise in practive without patient consent[13]. This is a principle generally accepted in

healthcare, especially with procedures that may cause harm to the patient. Such a development may have great implications both financially and legally for both the Professional and the hospital of practice[8].

Respondents adherence to ethical demands of Radiation protection in females of child-bearing age was also evaluated in this research. A significant majority of the respondents (88.6%) always verified if such patients were pregnant before carrying out any radiological investigation (Fig.4), involving the pelvis. For verification, majority (88.6%) confirmed the patient's last menstrual Period (LMP), while others (11.4%) either sometimes or rarely confirmed if patient might be pregnant. Of this percentage, 2.4% admitted to collimating the beam to reduce irradiating areas not of diagnostic interest. A similar study[8] has asserted that though this practice is acceptable in general Radiography to reduce unnecessary exposure, the rule should be altered when it has to be applied to females, especially those of child bearing age. This is to fully ensure that an unseen or unknown foetus is not irradiated unnecessarily, and is adequately protected from further radiation exposure that may lead to possible biological effects[8]. Radiation safety is one of the principal responsibilities of a Radiographer. The Radiographer is to always ensure that the patient's condition or safety (including that of an unborn fetus) is not placed at any risk consequent upon the Radiographers action or inaction[14]. This informs the application of such rules as the 10-day and more currently the 28-day rules for females of childbearing age.

The ethical requirement for implementation of quality assurance programme on equipments and materials in this study was assessed. Equipments used for, and by patients should be safe and functional. This is a basic demonstration of patient care. A combined 80% of the respondents admitted that they sometimes (67.5%) or rarely (12.5%) carried out quality assurance tests on equipments. This claim could not be backed by documentary evidence and professional reporting of the procedures carried out by any quality assurance expert. Intermittent repairs and equipment servicing were noted on verification.

This finding suggested a poor appreciation and adoption of regular quality assurance programmes on radiological equipments by the respondents, contrary to the ethical injunction that adequate maintenance, either preventive or corrective should be performed on equipments and materials to ensure good image quality, radiation protection, and safety of patients and other workers[8]. Not carrying out Quality Assurance programmes therefore, indicates that optimal performance by equipments and materials and by extension, the staff cannot be guaranteed.

Another professional criterion assessed in this study was the compliance to

continuous professional development (Fig.5). Only 28.8% of the respondents attended at least a programme in fulfillment of professional development in the year preceding this study; while 57.5% had had at least one in 2 years. Radiographers must maintain and strive to improve their professional knowledge and competence [7,14]. By so doing the purpose of such programmes as stated by Milburn et al[15] would be realized. The modern day Radiographer needs to be well trained and informed to function effectively in a diverse and rapidly changing health sector. CPD provides a guarantee for lifelong learning yielding progressive improvement in competence and proficiency. Practitioners need regular attendance and documentation of such events as long as they are in practice[7].

Using a rating of *poor, fair, good, very good, and excellent*, the general professional responsibilities of Radiographers/respondents were evaluated (Table 2). One of such responsibilities was the daily compliance to departmental/workplace protocols. Majority of the respondents 68.8% rated the degree of compliance *excellent*, while only 5% maintained the attitude is *poor*. Following laid down rules and regulation is a component of professional ethics; which encompasses personal and corporate standards of behaviour expected of professionals [(16)]. Compliance to work rules, ranging from early resumption of duty to following appropriate channels of communication, is vital in maintaining professionalism in daily practice. Radiographers must be able to appreciate the significance of professional regulation, behave in accordance with codes of professional conduct and exemplify good character within the professional context, and internalize professional standards both in workplace and private life [17].

The relationship between Radiographers and other health professionals, according to the respondents (Table 2), is reportedly *good* (20.3%), *very good* (57.9%) or *excellent* (24.1%). This is in accord with the statement on professional conduct by the College of Radiographers (London) that a Radiographer has a duty to work in a co-operative and collaborative manner with other professional staff and care-givers in the interest, and with the consent of their patient (s) except where there is a legal requirement to do otherwise[7]. Radiographers must be able to work, where appropriate, in partnership with other professionals, support staff, patients and their relatives and careers, must understand the need to build and sustain professional relationship as both an independent practitioner and collaboratively as a member of a team[18].

Volunteerism in medical outreaches or extra-curricular medical programmes/ community development was judged *good* by 55% of the respondents, while only 5% considered it *excellent* (Table 2). This attitude is adjudged deficient and in contravention of the injunction by the College of Radiographers that Radiographers should sustain

professional relationships as both independent practitioners and collaboratively as a member of the health team[18]. Health programmes are more enriched by full complement of the health team, which Radiographers are integral part of.

Margali Larson's assertion [1] that a profession arises when it undergoes transformation from a trade or occupation through formal education, apprenticeship and examinations etc, appears to be well understood by the respondents in this study (Table 2). It was found that radiographers devote time to teaching and mentoring of junior colleagues. A group of the respondents (45%) rated the degree of devotion to this *very good*, while 36.3% considered it as *excellent*. This attitude noted among the respondents is encouraging. The tenets of professionalism are imbibed through tutelage, mentoring, and continuous professional development. This is equally confirmed by the acknowledgement of 50% of the respondents who are dominated by junior Radiographers (Table 1), that the level of encouragement and mentoring from their senior colleagues were *excellent*. Additional 33.8% rated the relationship *very good*.

Conclusion: The adherence of Radiographers to their professional ethics and practices was above average in the parameters studied. However, there are still key areas that indicated significant underperformance. Implementation of quality assurance programmes on equipments was poor. This could contribute to poor radiation dose control. Adherence to continuous professional development and post-graduate training was grossly low. Efforts should be geared towards professional improvement. This will lead to every Radiographer knowing the tenets of his profession and bringing it to bear in everyday practice.

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