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Perceived level of professionalism among radiography students at the University of Namibia

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ABSTRACT

Introduction. Radiographers, like other health professionals, are mandated by their scope of practice to behave in a professional and ethical manner. Technological advances in the profession have led to the modernisation of the radiography profession. However, concerns have been raised in the health sciences' professions regarding unprofessional, unethical and unlawful behaviour of professionals. To gain public trust, radiographers should commit themselves to the standards of the profession.

Aim. The aim of this study was to assess the level of professionalism of student radiographers enrolled for the Bachelor of Radiography (Diagnostic) (BRad: D) degree programme at the University of Namibia (UNAM).

Methodology. A quantitative design with a cross-sectional approach was used. Data were collected from a conveniently selected sample of students enrolled for the BRad: D degree programme at the UNAM (n=55) who completed a self-administered questionnaire. Data were analysed using the statistical software programme (SPSS) (version 24).

Results. Participants reported varied levels of professionalism. Results indicated that the majority of the participants showed good accountability (n=47; 87%), compassion (n=46; 83.6%), excellence (n=39; 70.9%) and integrity (n=44; 80%). No significant association was found between the level of professionalism and the different years of study, how the participants perceived clinical practice and the workload, and how satisfied the participants were with the clinical setting and clinical supervision they received. Overall, it was found that the participants displayed average to good levels of professionalism.

Conclusion. Student radiographers work under supervision of radiographers; therefore, it is essential that their professional behaviour is aligned with the professional standards prescribed by the regulatory bodies. Educators should continually reinforce professional values, especially altruism and professional duty, among students during theoretical and clinical training. This will ensure that upon graduation, student radiographers can smoothly transition into professional radiographers who should demonstrate the level of professionalism consistent with the profession.

Keywords competence, professional duty, values, radiography

LAY ABSTRACT

This study aimed to provide information about the current level of professionalism of student radiographers in Namibia.

INTRODUCTION

The last few decades have seen major societal changes brought about by rapid technological advances.^[1] The introduction of artificial intelligence (AI) and robotics, in the age of the fourth industrial revolution (4IR), will see many vocations and labour markets being rendered obsolete. In the context of radiography education, one way to respond to these changes is to develop curricula that foster problem-solving, critical thinking, creativity, innovation and soft skills.^[1] Being mindful of the future direction of radiography as a profession, the researchers were prompted to establish the current levels of professionalism among undergraduate diagnostic radiography students.

Healthcare professionals (HCPs) have a

professional duty to conduct themselves in a manner based on established profession-specific standards to maintain public trust and confidence.^[2] In Namibia the responsibilities towards patients of HCPs, including radiographers, are documented in the Patient Charter.^[3] According to the Patient Charter, radiographers are obliged to respect the rights of patients, keep patient information confidential, and ensure that the patient's physical and emotional needs are met during radiological procedures.^[3] One of the core values outlined in the Patient Charter is professionalism.

Professionalism is defined as a set of values, behaviours and relationships that strengthen public trust in HCPs.^[4] Professional and educational organisations also use professionalism as one of the funda-

mental values in assessing HCPs' professional competence.^[5] Professionalism is a multifaceted concept. Drawing on the American Physical Therapy Association's model, professionalism encompasses six main values as indicated in Figure 1.^[6-7]

However, in recent times concerns have been raised in the literature, about unprofessional, unethical and unlawful behaviour in clinical settings.^[8] In order to gain public trust, radiographers, just like other HCPs, should commit themselves to the standards of the profession and should provide high levels of patient care. Therefore, professionalism can be assessed based on a HCP's commitment to the standards of care of a specific profession.

Hence, the aim of the study was to assess the level of professionalism among stu-



Figure 1. Six values encompassing professionalism according to the American Physical Therapy Association.^[7]

dent radiographers enrolled for the BRad: D degree programme at the UNAM.

METHODOLOGY

Data collection commenced after ethical approval was granted by the research ethics committee of the School of Nursing (SON), executive director of the Ministry of Health and Social Services of Namibia (MoHSS), and the principal radiographers at the selected research sites where students do their clinical training.

A quantitative design with a cross-sectional approach was used. The target population was all students enrolled for the four-year BRad: D degree programme offered at UNAM in the Allied Health Department of the School of Nursing (SON). A non-probability, convenience sampling strategy was used to recruit participants for the study. This sampling strategy enabled the researchers to select participants who were available and knowledgeable on the concept of professionalism.^[9] The estimated sample size required was determined using Slovin's formula:

$$n = \frac{N}{(1 + Ne^2)}$$

where N is the total number of radiography students registered, and n is the total sample size calculated at a confidence interval of 95% with margin of error (e) of 5%.^[9] At the time of the study there were

64 students registered for the BRad: D at UNAM. Therefore, 55 ($n=55$ from $n=64$) student radiographers were conveniently selected based on their availability and time at the clinical areas.

During recruitment the purpose of the study was explained to potential participants and informed consent was obtained. A self-administered, modified questionnaire from the American Physical Therapy Association^[7] was used as the data collection instrument. The questionnaire consisted of two sections. Section A covered demographics and section B comprised six subscales, each subscale corresponded to the six values encompassing professionalism according to the American Physical Therapy Association.^[7] There were 35 questions in total, namely:

- accountability (6 items),
- altruism (4 items),
- compassion (8 items),
- excellence (5 items),
- integrity (6 items),
- professional duty (6 items).

The participants were required to indicate their level of agreement with various statements in section B of the questionnaire to assess their level of professionalism. Section B contained 35 three-point Likert scale items (where 1=not at all, 2=sometimes, 3=always). For section B, participants' responses were totalled to obtain

an overall score for each of the six values. These overall scores were divided in three categories (i.e., poor, average and good) in lieu of the participants' perceived level of professionalism.

Prior to the main study a pilot study was conducted with ten ($n=10$) radiography students who were completing their clinical training at the National Health Training Centre. The pilot study was conducted to determine the validity and reliability of the research instrument; no amendments were made after the pilot study. The results from the pilot study were excluded from the final data analysis. The research was guided by the ethics principles of respect for persons, autonomy, beneficence, and justice.^[9] Participation in the study was voluntary and participants had the right to withdraw from the study at any time without any repercussions. The completed questionnaires were coded to ensure anonymity of the research participants. Data were collected by a final year student to eliminate any potential power imbalances between the participants (i.e. students) and lecturers as well as potential bias by the researchers. The data collected was locked and stored on password protected computers accessible to the researchers only.^[9,10]

The data obtained were captured in Microsoft Excel and analysed by means of the statistical software programme (SPSS) (version 24). Data were analysed using descriptive and inferential statistical methods. The descriptive results are presented as distribution frequencies and percentages. A Pearson's chi-squared test (χ^2) was used to check for any significant association between the level of professionalism and other categorical variables. Associations were considered statistically significant if $p \leq 0.05$.

RESULTS

Demographic data were captured: females (75%) and males (25%); median age was 21 years ($n=55$); ages ranged from 18 to 48 years. Participants' year of study: 1st year (36%), 2nd year (32%), 3rd year (13%), and 4th year (18%). The majority of the participants ($n=43$; 78%), expressed satisfaction studying radiography; a few ($n=12$; 22%) were dissatisfied. The majority (86%) indicated that their aspiration was to pursue further studies.

It was found that 78% of participants were extremely or fairly satisfied with the clinical

Table 1. Accountability and altruism among student radiographers

Statement: As a student radiographer, I:	Not at all n (%)	Sometimes n (%)	Always n (%)
Accountability			
1. Assume responsibility for learning and change.	0 (0%)	20 (36.4%)	35 (63.6%)
2. Adhere to code of ethics, standards of practice, and policies/procedures that govern the code of professional activities when in the clinical setting.	0 (0%)	22 (40%)	33 (60%)
3. Seek continuous improvement in quality of care delivered to patients.	2 (3.6%)	14 (25.5%)	39 (70.9%)
4. Maintain membership with The Allied Health Professions Council of Namibia (AHPANA).	4 (7.3%)	10 (18.2%)	41 (74.5%)
5. Acknowledge and accept consequences for their actions.	2 (3.6%)	15 (27.3%)	38 (69.1%)
6. Respond to patients' goals and needs.	1 (1.8%)	14 (25.5%)	40 (72.7%)
Altruism			
1. Place patients' needs above their own need during radiography procedures.	1 (1.8%)	23 (41.8%)	31 (56.4%)
2. Provide patient services that go beyond the expected standards of care.	7 (12.7%)	37 (67.3%)	11 (20%)
3. Provide radiography services to the patient even after hours.	13 (23.6%)	33 (60%)	9 (16.4%)
4. Complete radiographic procedures and professional responsibilities prior to personal needs.	5 (9%)	25 (45.5%)	25 (45.5%)

Table 2. Compassion and excellence among student radiographers

Statement: As a student radiographer, I:	Not at all n (%)	Sometimes n (%)	Always n (%)
Compassion/caring			
1. Understand the socio-cultural, economic and psychological influences on the individual's life in their environment.	4 (7.3%)	27 (49.1%)	24 (43.6%)
2. Attend to the patient's personal needs and comforts.	3 (5.5%)	29 (52.7%)	23 (41.8%)
3. Communicate effectively with other students taking into consideration individual differences in learning styles, language and cognitive abilities.	1 (1.8%)	18 (32.7%)	36 (65.5%)
4. Strive to empower patients to achieve the highest level of function possible and to exercise self-determination in their care.	1 (1.8%)	25 (45.5%)	29 (52.7%)
5. Understand the patients' needs.	0 (0%)	26 (47.3%)	29 (52.7%)
6. Refrains from acting on my social, cultural gender and sexual biases during radiographic procedures.	1 (1.8%)	13 (23.6%)	41 (74.6%)
7. Embraces the patients' emotional and psychological aspects of care.	0 (0%)	24 (43.6%)	31 (56.4%)
8. Demonstrate respect for others and considers patients as unique beings and of value.	1 (1.8%)	11 (20%)	43 (78.2%)
Excellence			
1. Demonstrate investment in the profession of radiography.	5 (9%)	25 (45.5%)	25 (45.5%)
2. Demonstrate high levels of knowledge and skills in all aspects of the profession.	1 (1.8%)	28 (50.9%)	26 (47.3%)
3. Engage in acquisition of knowledge throughout my professional career.	0 (0%)	27 (49.1%)	28 (50.9%)
4. Share my knowledge with others.	2 (3.6%)	19 (34.6%)	34 (61.8%)
5. Pursue new knowledge with others.	4 (7.3%)	17 (30.9%)	34 (61.8%)

Table 3. Integrity and professional duty among student radiographers

Statement: As a student radiographer, I:	Not at all n (%)	Sometimes n (%)	Always n (%)
Integrity			
1. Am Trustworthy.	1 (1.8%)	6 (10.9%)	48 (87.3%)
2. Know my limitations and act accordingly.	0 (0%)	12 (21.8%)	43 (78.2%)
3. Recognise the limits of my expertise and make referrals appropriately.	2 (3.6%)	21 (38.2%)	32 (58.2%)
4. Abide by the rules, regulations and laws applicable to the profession.	1 (1.8%)	13 (23.6%)	41 (74.6%)
5. Adhere to the highest standards of the radiography profession (practice, ethics).	0 (0%)	17 (30.9%)	38 (69.1%)
6. Recognise my limitations during clinical practice (i.e. only take views taught in class).	2 (3.6%)	26 (47.3%)	27 (49.1%)
Professional duty			
1. Demonstrate beneficence by providing "optimal care".	1 (1.8%)	18 (32.7%)	36 (65.5%)
2. Facilitate other individuals' achievement of goals for function, health and wellness.	1 (1.8%)	29 (52.7%)	25 (45.5%)
3. Involve in professional activities beyond the practice setting.	9 (16.4%)	29 (52.7%)	17 (30.9%)
4. Promote the profession of radiography.	4 (7.3%)	25 (45.4%)	26 (47.3%)
5. Take pride in my profession.	5 (9.1%)	16 (29.1%)	34 (61.8%)
6. Mentor other students to realise their potential.	7 (12.7%)	24 (43.6%)	24 (43.6%)

cal supervision they received; and 22% were dissatisfied. In terms of rating the levels of stress that the participants experienced during workplace learning almost a third (35%) indicated that it was very stressful. Slightly more than half (55%) reported it was fairly stressful, and a few (10%) indicated that it was not stressful. In terms of perceived workload during workplace learning, 58% regarded it as high, 36% as fair, and 6% as low.

• Core values of professionalism among student radiographers

Most of the participants, as indicated in Table 1, did demonstrate the expected professional behaviour with respect to accountability. In terms of altruism, the majority (56.4%) indicated that they always placed patients' needs above their own needs during radiography procedures. This is a good indication of altruism.

Table 2 shows that 78.2% responded that they did have respect for others and considered patients as unique beings and of value. This is a very important element of compassion or caring. Considering excellence, the majority (61.8%) responded

that they always shared and pursued new knowledge with others as part of behaviour attributed to excellence.

Table 3 shows that 87.3% of the participants reported that they were always trustworthy, which is one of the important elements that defines integrity and ethical behaviour. With regard to professional duty, approximately two-thirds (65.5%) responded that they always demonstrated beneficence by providing optimum care. Most (61.8%) indicated that they took pride in the radiography profession.

• Levels of professionalism for each of the six values of professionalism

Elements within each core value were summed to generate final, overall scores for each core value encompassing professionalism. These scores were then categorised into poor, average, or good professional practice for each of the six core values (Table 4).

Table 4 shows that 87% of the participants showed a good sense of accountability; 83% showed strong a desire towards being compassionate; and 80% showed

a good level of integrity. In contrast, only 38.2% demonstrated that they were altruistic. Overall, the majority reported varied levels of professional values that indicated their level of professionalism. None lacked professionalism.

Using Pearson's chi-squared test no statistically significant association was found between the level of professionalism and academic year of study ($p=0.635$), satisfaction with radiography as career ($p=0.725$), satisfaction with clinical supervision ($p=0.096$), satisfaction with the clinical setting ($p=0.339$), perceived workload ($p=0.551$), and whether workplace learning is stressful ($p=0.551$).

DISCUSSION

At UNAM students complete an ethics module in the first and final years of the four-year BRad: D degree programme. Professionalism is synonymous with ethics and ethical behaviour, being characterised by skills, behaviour and conduct deemed fit for a particular duty or profession. Professionalism is believed to aid in the quality and efficiency of healthcare services.^[11] Although members of a profession may be

Table 4. Levels of professionalism categorised by each value

Elements	Level of professionalism		
	Poor	Average	Good
Accountability	0 (0%)	8 (13.0%)	47 (87.0%)
Altruism	5 (9.1%)	29 (52.7%)	21 (38.2%)
Compassion	0 (0%)	9 (16.4%)	46 (83.6%)
Excellence	1 (1.8%)	15 (27.3%)	39 (70.9%)
Integrity	1 (1.8%)	10 (18.2%)	44 (80%)
Professional duty	3 (5.5%)	26 (47.3%)	26 (47.3%)

from different backgrounds with different behaviours and attributes, their actions should be aligned to the expected level of professionalism for a specified profession.

Namibia's population is diverse in terms of mother tongue languages and socio-economic factors. Hence this diversity is evident in the student recruitment policies of UNAM. These individual inherent characteristics should not affect the way in which students exhibit professionalism in their clinical practice. While higher education was reported to be associated with high levels of professionalism among healthcare professionals,^[12] this association was not apparent in this study.

The stage of training reflected as the year of study did not affect the reported level of professionalism of the participants. The year of study can be considered a reflection of the experience one has in the profession and was reported to influence professionalism before. Since professionalism is based on knowledge, usually acquired through long periods of focused education and training, those who spent more years learning and training towards a health profession are expected to exhibit higher levels of professionalism compared to those with fewer years.^[13] However, the four-year difference between first and fourth year students in the current study was not enough to demonstrate a significant change in levels of professionalism. This finding is similar to a nursing study where there was no significant difference in professionalism of participants with 0 to 5 years of clinical experience.^[12]

Accountability is another important element of professionalism and a lack thereof may put patients' lives at risk. Accountability enhances radiographer-patient relationships, fosters trust, improves the quality of care and enables efficient use of resources whilst reducing medical mistakes and errors.^[14] Accordingly, radiographers are accountable for their pro-

fessional judgements and actions during the practice of radiography. Most of the participants in this study (87%) reported that they always demonstrated accountability in their professional behaviour reflecting their adherence to the codes of conduct of their profession. Radiographers are accountable for fulfilling their obligations and duties with their patients.^[2] For radiographers to adequately demonstrate accountability they have to be clinically competent; this requires active efforts to attain and maintain the necessary skills for the provision of exceptional patient care. As for students, their level of competency is based on their year of study and they may not be completely accountable for radiographic procedures as they work under supervision. According to the Society of Radiographers (UK), in order for one to be accountable, individuals must have the ability to perform a task, have accepted responsibility for the task and are allowed by law to perform such task.^[15] Therefore, student radiographers remain personally accountable for their actions as part of professional duty as registrants of the professional council.

The majority of participants in this study demonstrated average to good levels of altruism in their professional behaviour (Table 4). Altruism is recognised as a core value of HCPs: it is based on acting in the best interests of others with minimum consideration of self. Altruism is perceived as a selfless virtue that defines professionalism among HCPs, including radiographers. The participants indicated that they were devoted to the welfare of others despite numerous personal, family, and societal confounders that usually affect students. Some of the hallmarks of altruism^[16] in healthcare are working overtime without compensation, forgoing lunchtime and working long hours to serve patients. The findings in this study were that the participants showed average to good levels of altruism, whereas

a study in India, reported that medical students displayed a low level of altruistic behaviour.^[17] A more recent study^[18] found that excessive practice of altruistic behaviour may lead to burnout and depression. Disregarding of self and poor self-care have been reported to cause departure of individuals from health professions, as well as inducing mental health challenges with an increased suicidal risk. Therefore, it is paramount that health professionals maintain and achieve a healthy work-life balance.

Considering levels of compassion in this study most of the participants indicated good levels of compassion as an element of professional behaviour (Table 4). Compassionate care is a skill that is emphasised in the code of professional conduct for radiographers.^[2] When providing care to patients, radiographers should ensure that they are compassionate and provide it at the highest level in terms of quality. This ensures optimal patient care provision. When professionals provide compassionate care, they exhibit a high level of respect towards patients, that fosters trust, and when being empathetic they restore patient dignity.^[19] The majority of the participants reported that they did show sympathy and/or empathy towards their patients when caring for them and considered this an important element of their professional behaviour (Table 1). Literature also indicates that successful radiographers demonstrate a high levels of care and are concerned about the need and values of others.^[20] Student radiographers usually interact with patients for a short time, due to the nature of radiographic procedures. During this short interaction with patients they need to establish rapport and be mindful of a patient's needs and act accordingly. This is in line with a compassionate attitude and is regarded as professional behaviour.^[21] Student radiographers attain knowledge, skills and attitudes as they progress during training which enables them to provide the necessary quality and compassionate care.^[22] Hence, one would expect senior students to have greater levels of professionalism compared to their junior counterparts. This was not the case in the current study, as no significant association was found between perceived professionalism and year of study among the participants ($p=0.635$).

A critical element that elevates a profession is public trust and confidence.

Accordingly radiographers, including students, must conduct themselves with honour and dignity whilst demonstrating trustworthiness and integrity in order to safe guard the profession and uphold public trust.^[2] Most participants perceived integrity as an integral component of their professional behaviour (Table 3). This affirms the belief that radiographers must be fair, truthful and honest during their professional interaction with patients.^[2] The need to act with integrity is embedded within the professional behaviour for radiographers; students are socialised into such behaviour during the course of their training.^[23]

This current study found that most of the participants had good professional practices in relation to excellence (Table 2). Clinical excellence is an attribute of professionalism that is based on the maintenance of clinical expertise, efficiency and evidence-based practice.^[24] The participants indicated their desire to continue learning; this is one critical element that enables demonstration of clinical excellence. With radiography expanding into new modalities and applications, education and continuous learning play a pivotal role for effective demonstration of clinical excellence. The Health Professions Councils of Namibia (HPCNA) requires radiographers to actively engage in continuing professional development (CPD) activities^[25] and it is imperative that the concept of lifelong learning is inculcated among radiography students before qualifying. Radiographers must show commitment to further their education so as to increase their knowledge of the profession in order to better assist and care for their patients.^[26] In terms of the findings of this study it was evident that student radiographers at UNAM possess a desire for lifelong learning, which enables them to achieve excellence in their conduct, and represents a high level of professionalism (Table 2).

Radiographers have a moral and legal responsibility to patients and professional duty to provide high levels of care to patients, their families, and all relevant stakeholders. As part of their professional duty of care for patients, radiographers are expected to explain the benefit, risks and alternatives of radiographic procedures to patients and ensure that these are fully understood before a patient consents to undergoing a specific radiographic procedure.^[2] Radiographers' professional duty also includes a number of other elements

that are prescribed in the ethical code of conduct. These include provision of good service to users, maintenance of professional boundaries, patient confidentiality, and effective communication, for example.^[2] This study showed that the participants did predominantly have an average to good perception of and orientation to professional duty (Table 4). Various aspects of professional duty are emphasised during the different years of training and therefore it may be that the students are yet to master some of the elements of professional duty and inculcate them in their professional behaviour.

Based on the results of this study it can be argued that the majority of radiography students registered at UNAM for the four-year BRad: D degree programme demonstrated a good level of professionalism that is consistent with the professional standards expected in the diagnostic radiography profession. This is not unusual as professionalism is embedded within most educational curricula of healthcare programmes and is underscored during clinical training in hospitals. Professional socialisation, which assists in moulding a student into a competent professional, is a fundamental principle in training of healthcare professionals which is initiated at the beginning of training. Similar studies among nurses demonstrated high levels of professionalism^[13, 27] reflecting on the adherence of HCPs to professionalism as prescribed by regulatory bodies while others reported moderate^[28] to low^[12, 29] levels of professionalism.

CONCLUSION

The self-reported, perceived level of professionalism was good for the majority of the participants across the six values of professionalism that were assessed. Altruism and professional duty recorded more participants with average and poor scores compared to the other elements of professionalism. While student radiographers still work under supervision, their professional behaviour must be aligned to those prescribed by the regulatory bodies. Age and year of study did not affect the level of professionalism as there was little variation of these in this study. There should be continuous reinforcement of professionalism among students during theoretical education and clinical training especially regarding altruism and professional duties. This should ensure that upon graduation, student radiographers can smoothly tran-

sition into a professional radiographer and can demonstrate the level of professionalism consistent with the profession.

LIMITATIONS OF THE STUDY

The study was based on a self-reporting instrument which is prone to self-reporting bias. Although researchers emphasised that participants be truthful in their responses, a follow-up observational study is recommended to assess professionalism in actual day-to-day practice.

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AUTHORS' CONTRIBUTIONS

EHT conceptualised the study, did the literature review, collected and analysed the data. ED supervised the study, assisted with the literature review, assisted with data analysis, and prepared the manuscript. AK assisted with the literature review, data analysis, and preparation of the manuscript. AK and ED finalised the manuscript and guarantee the integrity of the study.

CONFLICT OF INTEREST

None to declare.

REFERENCES

1. Gleason NW. Singapore's higher education systems in the era of the fourth industrial revolution: Preparing lifelong learners. In: Gleason NW, editor. Higher Education in the Era of the Fourth Industrial Revolution. Singapore: Palgrave Macmillan, 2018: 145-68.
2. Harris R. Code of professional conduct. 2013. [Cited 2020 May 3]. Available from: <https://www.sor.org/print/book/export/html/9953>
3. Ministry of Health and Social Services (MoHSS). Patient Charter. [Cited 2020 May 3]. Available from: <http://www.mhss.gov.na/documents/119527/120639/Patient+Charter.pdf/e4a6d336-de3d-40ce-b886-c23d-5abc8e2c>
4. Wass V. Doctors in society: Medical professionalism in a changing world. Clin Med. 2006, 6:109-113. [Cited: 2020 May 3]. Available from: <https://www.rcpjournals.org/content/clinmedicine/6/1/109.full.pdf>
5. Zijlstra-Shaw S, Robinson PG, Roberts T. Assessing professionalism within

- dental education; the need for a definition. *Eur J Dent Educ.* 2012, 16(1):e128-136.
6. Collier R. Professionalism: what is it? *Can Med Assoc J.* 2012,184(10):1129-1130. [Cited 2020 May 3]. Available from: <https://dx.doi.org/10.1503%2Fcmaj.109-4211>
 7. American Physical Therapy Association (APTA). Core values for the physical therapist and physical therapist assistant.. 2019 [Cited 2020 May 3]. Available from: http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/Ethics/CoreValuesEndorsement.pdf
 8. Challen V, Laanelaid Z, Kukkes T. A qualitative study of perceptions of professionalism amongst radiography students. *Radiography.* 2017,23(1):S23-29.
 9. Brink H, Van der Walt C, Van Rensburg GH. Fundamentals of research methodology for health care professionals. 4th ed. Cape Town: Juta, 2017.
 10. Kothari C. *Research Methodology: methods and techniques.* 2nd ed. New Delhi: New Age International (Pty) Ltd. Publishers, 2004.
 11. Campbell EG, Regan S, Gruen RL, Ferris TG, Rao SR, Cleary PD, Blumenthal D. Professionalism in medicine: Results of a national survey of physicians. *Ann Intern Med.* 2007,147(11):795-802.
 12. Tanaka M, Yonemitsu Y, Kawamoto R. Nursing professionalism: A national survey of professionalism among Japanese nurses. *Int J Nurs Pract.* 2014,20(6):579-587.
 13. Fantahun A, Demessie A, Gebrekirstos K, Zemene A, Yetayeh G. A cross sectional study on factors influencing professionalism in nursing among nurses in Mekelle Public Hospitals, North Ethiopia, 2012. *BMC Nurs.* 2014,13(1):1-7.
 14. Creating a culture of accountability in healthcare. [Cited 2020 May 3]. Available from: <https://www.powerdms.com/blog/creating-culture-accountability-healthcare/>
 15. Johnson S. Scope of practice of assistant practitioners.2012. [Cited 2020 May 3]. Available from: <https://www.sor.org/learning/document-library/scope-practice-assistant-practitioners>
 16. Sanjai S, Gopichandran V. Selfless giving in medicine: a study of altruistic attitudes among medical students. *Indian J Med Ethics.* 2018,3(1):28-34.
 17. Oakley B, Knafo A, McGrath M. Pathological Altruism - An Introduction. In Oakley B, Knafo A, Madhavan G, David Sloan Wilson, editors. *Pathological altruism*. New York: Oxford University Press, 2011:3-9.
 18. Zwack J, Schweitzer J. If every fifth physician is affected by burnout, what about the other four? Resilience strategies of experienced physicians. *Acad Med.* 2013,88(3):382-389.
 19. Willis Lord. Raising the Bar - Shape of Caring: A Review of the Future Education and Training of Registered Nurses and Care Assistants. 2015. [Cited 2020 May 3]. Available from: <https://www.hee.nhs.uk/our-work/shape-caring-review>
 20. Field LJ, Snaith BA. Developing radiographer roles in the context of advanced and consultant practice. *J Med Rad Sci.* 2013, 60(1):11-15.
 21. Strudwick R, Mackay S, Hicks S, Kelly S. Is diagnostic radiography a caring profession? *Synergy.* 2011, June:4-7.
 22. Adam D, Taylor R. Compassionate care: Empowering students through nurse education. *Nurse Educ Today.* 2014,34(9):1242-1245.
 23. International Society of Radiographers and Radiological Technologists (ISRRT). Code of Ethics. [Cited 2020 May 3]. Available from: <https://www.isrrt.org/code-ethics>
 24. Davis C. Cultivating clinical excellence.. 2014,. [Cited 2020 May 3]. Available from: https://journals.lww.com/nursing-madeincrediblyeasy/fulltext/2014/01000/cultivating_clinical_excellence.1.aspx
 25. Uarije C, Daniels ER, Kalondo L, Amkongo M, Damases-Kasi CN, Nabasenja C. Radiographers' attitudes towards continuous professional development (CPD) at state hospitals in Windhoek Namibia. *The South African Radiographer.* 2017,55(1):18-22.
 26. Ugwu AC, Erondy OF, Onwuazombe CT. Attitudes and barriers to post graduate education among radiographers in South Eastern Nigeria. *Int J Trop Dis Health.* 2012, 2(2):112-122.
 27. Hwang J-I, Lou F, Han SS, Cao F, Kim WO, Li P. Professionalism: the major factor influencing job satisfaction among Korean and Chinese nurses. *Int Nurs Rev.* 2009,56(3):313-318.
 28. Shohani M, Abedi L, Rasouli M. Professional attitude in Iranian nursing students. *J Clin Diag Res.* 201812(6):10-13.
 29. Karadağ A, Hisar F, Elbaş NÖ. The level of professionalism among nurses in Turkey. *J Nurs Scholarsh.* 2007,39(4):371-374.