Perception of professionalism in clinical practice among clinical year radiography students in a tertiary institution in Ghana

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Abstract

Introduction: Professionalism describes the positive attitudes, conduct, aims, values, skills, and behaviours that characterize a profession or a group of professionals. The steady professional growth of radiographers, which begins during undergraduate training, continues to be significantly influenced by education. As professional traits are ingrained in radiography students through official clinical instruction and observations, research on professionalism is necessary to monitor the perception of the subject matter. However, no study on Ghanaian radiography students on professionalism has been conducted. This study's goal was to determine how clinical radiography students at a higher education facility in Ghana viewed the professionalism of radiography practice.

Methods: Sixty-four consenting students in the University of Ghana School of Biomedical and Allied Health Sciences Level 300 (3rd year) and Level 400 (4th year) of the BSc Diagnostic Radiography and BSc Therapy programmes completed the Pennsylvania State College of Medicine Professionalism Questionnaire (PSCOM-PQ) which was used determine the impacts and challenges to professionalism. Version 23.0 of the Statistical Package for Social Science program (SPSS 23.0) was used to analyze the collected data.

Results: A good sense of professionalism in clinical practice was held by the majority of clinical radiography students. More than 56% of them observed professional practice among the majority of radiographers, contrary to 40.6% of them who witnessed it among only a few radiographers. The students observed both positive and negative effects on the professionalism of radiography practice. As a result, 77.9% of the students said that it was difficult to exhibit professionalism in radiography during their clinical training.

Conclusion: The students agreed that professionalism impacted positively and negatively on radiography practice, and consequently identified to need to address the mitigating challenges

to improve the level of professionalism. By this, most of the clinical year students had a better understanding of perceptions of the professionalism of radiography practice.

Implication for Practice

According to the study's findings, clinical students' radiography practice is affected either positively or negatively by their conceptions of professionalism and their adherence to them during the entire training period.

Keywords: Professionalism, perception, radiography students, radiography, understanding.

Introduction

Professionalism is the fundamental core characteristic at the heart of any healthcare profession, and is defined within the context of health practice as the basic values, behaviours, and relationships towards clients based on trust, mutual respect, and accountability [1-10]. As a result of this, as well as their roles as healthcare experts, radiographers are expected to uphold and enhance qualities for maintaining the highest standards and behaviour in the practice of their profession [8, 9, 10]. Respect, reliability and honesty, clear and effective communication, competence, honesty, and integrity, teamwork, accountability, ongoing knowledge and skill development, moral conduct, and compliance with rules and regulations are just a few of these qualities [8, 9, 11, 12].

To foster civil behaviour and deal with any instances of incivility or lack of respect among peers and patients, professionalism also depends on strong ethical foundations [2]. Therefore, the level of professionalism of the radiography workforce is greatly determined by their capacity to deal with the complicated professional and various layers of potential ethical concerns and dilemmas [1, 2].

Healthcare systems urgently require professionals or professional skills of high calibre due to increased knowledge and competition in delivering outstanding patient care. Hence, professionalism must be high at all times to achieve excellence [3]. Professionalism is

connected to or relates to the roles and responsibilities of regulatory agencies that monitor professional registration requirements and professional organizations that concentrate on professional practice, ethics, and morality in their daily operations [8, 9, 11, 12]. Radiography in Ghana is one of the several allied health professions regulated by the Allied Health Professions Council (AHPC), which was created by an Act of Parliament in 2013 (Act 857). By this Act, the AHPC has responsibility for evaluating all allied health education and training programs, awarding professional accreditation, ensuring the highest standards in the professional practice of allied health professions, and regulating the standard and quality of services.

In addition to these, the AHPC also administers licensing examinations for allied health professionals seeking registration, facilitates and implements post-registration continuing professional development (CPD) for practitioners, and ensures that allied health practitioners' education and training are carried out at approved educational institutions under approved courses of instruction. It also provides practical training to allied health professionals.

The Ghana Society of Radiographers (GSR), on the other hand, is a professional organization of qualified, licensed, and professionally trained diagnostic and therapy radiographers. It upholds the dignity of radiography practice in Ghana and ensures that the country's radiation therapy and medical imaging practices meet the highest international standards.

Generally, a professional code of conduct provides documentary details of the expectations and actions of professionals in the course of their practice. The elements of the code of conduct may include ethics, morals, discipline, and responsibilities, while the principles include integrity, objectivity, professional competence, due care, confidentiality, and professional behaviour. Specific to Ghana, the GSR code of conduct for radiography practice identifies patients presenting for diagnostic and therapeutic radiography services as the central

focus of their practice expects a demonstration of conduct in professional practice that reflects the goals founded on the professional principles and standards of integrity, fairness, respect, compassion. It also ensures practice that promotes patient and public trustworthiness, professional competence, and confidentiality. The code of (professional) conduct, therefore, provides the basis by which professionals and students are compared against.

Although there has not been much research on how radiography students see professionalism and the factors impacting the development of their perceptions, professionalism is now a key component of the curriculum in many nations [12]. This is important because placement students work with qualified radiographers all the time. They usually start off observing what they practice, then practice under supervision, and finally do what they have been taught unassisted. These processes can shape the bases of students' professionalism as they could learn both good and bad behaviours.

This study examined radiography students' perceptions of professionalism in Ghanaian radiography practice since the undergraduate education phase is crucial for the development of professionalism and the building of professional identities. This was accomplished by gathering broad viewpoints on professionalism in radiography practice from clinical year radiography students, identifying any obstacles to professionalism in radiography practice, and formulating pertinent recommendations based on the study's conclusions. The outcome will also add to the evidence base, the student's opinion on what affects their ability to be professionals.

Methods

The study [SBAHS-Et/034007113/AA/26A31] with a cross-sectional prospective quantitative design and purposive sampling was authorized by the UG-SBAHS Ethics and Protocol Review Committee. The students signed written informed consent forms after being fully educated about the research study and ethical requirements. No student names were utilized, hence the information (questionnaires) was completely anonymous. Confidentiality

was ensured by using coded identifications. As clinical rotations were completed in the third and fourth years at the time of the study, only Level 300 (3rd year) and Level 400 (4th year) diagnostic and therapy radiography students who had practical, hands-on professional training experience and could evaluate the professionalism of radiography practice at their training locations clinical radiography students were recruited as subjects for this study. Out of a total of 73 students, 64 willing clinical-year diagnostic and therapy radiography students of the clinical year of the BSc Diagnostic Radiography and BSc Therapy programmes made up the study population.

The semi-structured Pennsylvania State College of Medicine Professionalism Questionnaire (PSCOM-PQ) [4] with both closed- and open-ended questions was chosen and modified for this study. This tool has already been evaluated for validity and reliability [4]. Four out of the 44-itemized questionnaire elicited demographic data, while 36 closed-ended questions focused on the six American Board of Internal Medicine (ABIM) elements: honour and integrity, excellence, duty, altruism, respect, and accountability. To gauge the students' perceptions of professionalism in clinical radiography practice, each statement was responded to on a five-point Likert scale. The remaining questions, both closed- and open-ended, tested the students' perceptions of the value of professionalism and looked into whether or not there were any difficulties in using professionalism in radiography practice. Before the commencement of the survey among the 64 participants, the questionnaire was piloted with 5 students to test its reliability and validity and assess its clarity for the study participants, which turned out to be appropriate. Four students declined their consent to participate

Statistical Analysis

The required data was retrieved from the questionnaires and fed into spreadsheets before transferring them into IBM SPSS version 26.0 (IBM, Armonk, NY, USA). Descriptive

statistics (mean, standard error, standard deviation) were then analyzed. Moreover, the independent *t*-test was used to comparatively analyze the elements of professionalism scores among the Level 300 and Level 400 students, as well as programme specializations and gender, since the data variables were randomly distributed and satisfied the assumption for a parametric data set. All statistical tests had a significant level of 5% ($p<0.05$).

Results

Sixty-four out of 68 hand-delivered questionnaires were completed and returned on the same day, giving a response rate of 94. 1%. The youngest and oldest students in the cohort were 19 years and 30 years respectively (mean age: 22 years). Almost 97% of the students were aged 19–24 years and consisted of more males than females (Fig.1).

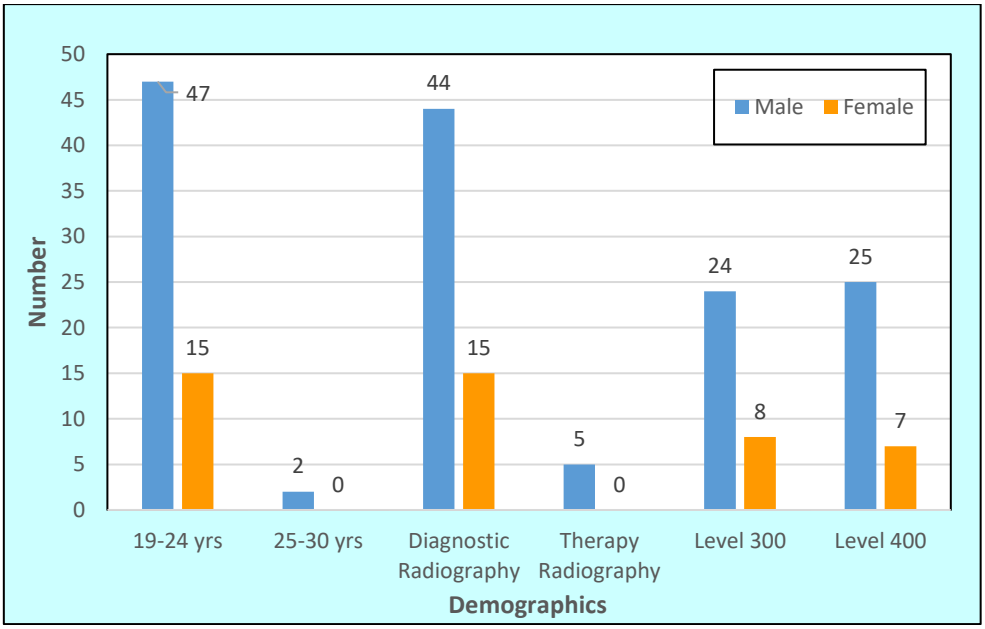

Fig. 1: Students demographics: age, programme specialty, and level (year)

Over 92% of them pursued diagnostic radiography. None of the female participants was a therapy radiography student. The population of students in both academic levels was the same.

Perception of Professionalism

Table 1 displays the evaluation of the students' perceptions of professionalism based on the ABIM excellence, honour, and integrity aspects.

Table 1: Students' perception of professionalism: honour, integrity, excellence

Perceptions of professionalism in radiography practice	Responses (five-point Likert scale)				
	Never	Little	Some	Much	Great deal
Honour and integrity [*n* (%)]					
Reports data consistently, accurately, and honestly	1 (1.6)	3 (4.7)	9 (14.1)	21 (32.8)	28 (43.8)
Refuses to violate personal and professional code of conduct -	-	1 (1.6)	7 (10.9)	25 (39.1)	31(48.4)
Meets commitments and obligations in a conscientious manner	-	-	5 (7.8)	33 (51.6)	26 (40.6)
Promotes justice in radiography practice by demonstrated efforts at eliminating discrimination	-	3 (4.7)	15 (23.4)	24 (37.5)	22 (34.4)
Reports medical or research errors	2 (3.3)	5 (7.8)	18 (28.1)	23 (35.9)	16 (25.0)
Discloses conflicts of interest in the course of professional duties and activities	11(17.2)	6 (9.4)	14 (21.9)	20 (31.3)	13 (20.3)
Excellence [*n* (%)]					
Seeks self-improvement	1(1.6)	5 (7.8)	13 (20.3)	23 (35.9)	22 (34.4)
Promotes the welfare and development of junior faculty	-	6 (9.4)	14 (21.9)	29 (45.3)	15 (23.4)
Contributes meaningfully to the teaching mission of the radiography department	-	5 (7.8)	9 (14.1)	32 (50.0)	18 (28.1)
Assumes leadership in patient management	3 (4.7)	6 (9.4)	15(23.4)	28 (43.8)	12 (18.8)
Participates in activities aimed at attaining excellence in care	-	-2 (3.1)	9 (14.1)	27 (42.2)	26 (40.6)
Responds to constructive criticism by working to improve one's capability in the area of concern criticized	1 (1.6)	4 (6.3)	9 (14.1)	26 (40.6)	23 (35.9)

Twenty-eight (43.8%) of them believed that reporting data consistently, accurately, and honestly was the right thing to do professionally, and 31 (48.4%) said that refusing to violate a person's or organization's code of conduct showed a great lot of honour and integrity in the workplace. While more students (51.6%) agreed that it was important to fulfill commitments

and obligations conscientiously, few (37.5%) thought it was very important to advance justice in radiography practice by making efforts to end discrimination. Twenty (31.3%) students also agreed that it was important to disclose any conflicts of interest while performing professional duties.

Regarding excellence, 32 (50.0%) students mentioned contributions to the radiography department's teaching mission, and 29 (45.3%) students said it was important to support the welfare and development of junior faculty. The students also identified other behaviours as indicators of professionalism in radiography practice, including seeking self-improvement (35.9%), taking charge of patient management (43.8%), participating in activities to achieve excellence in care (42.2%), and responding to constructive criticism by working to strengthen one's abilities (40.6%).

Tables 2 and 3 show the students' perceptions of professionalism based on duty and altruism, and accountability and respect respectively. Most of the students (42.2%) answered that it was significant to review other colleagues' work and provide meaningful and constructive comments to improve it, while some (26.6%) expressed the same thought, and 15.6% perceived it as a great deal to do so. Attending faculty meetings, seminars, and student research presentations as a sign of support (40.6%), demonstrating adaptability in response to shifting needs and priorities (40.6%), and adopting consistent and equitable standards for patient care (43.8%) were among the responses given by a sizeable portion of the students as professional duties. The number of students who identified commitment toward implementing cost-effective care as considerably needful in defining professionalism in radiography practice (34.4%) was comparable to those who thought it was a great deal (32.8%).

Table 2: Students' perception of professionalism: duty and altruism

Perceptions of professionalism in radiography practice	Responses (five-point Likert scale)				
	Never	Little	Some	Much	Great deal
	Duty [*n* (%)]				
Takes time to review other colleagues' work & provide meaningful and constructive comments to improve it	1 (1.6)	9 (13.1)	17 (26.6)	27 (42.2)	10 (15.6)
Attends faculty meetings, seminars & students research presentations as a reflection of support	1 (1.6)	4 (6.3)	20 (31.3)	26 (40.6)	13 (20.3)
Volunteers one's skills and expertise for the welfare of the community	2 (3.1)	2 (3.1)	15 (23.4)	23 (35.9)	22 (34.4)
Demonstrates adaptability in responding to changing needs and priorities	1 (1.6)	2 (3.1)	13 (20.3)	26 (40.6)	22 (34.4)
Adopts uniform & equitable standards for patient care	-	-	6 (9.4)	28 (43.8)	27 (42.2)
Commits to implementing cost-effective care	-	6 (9.4)	15(23.4)	22 (34.4)	21 (32.8)
	Altruism [*n* (%)]				
Maintains relationships that do not exploit privacy, sexual advantage, personal financial gain	1(1.6)	2 (3.1)	7 (11.0)	15 (23.4)	39 (60.9)
Shows willingness to initiate and offer assistance toward a colleague's professional and personal development	-	-	17 (26.6)	28 (43.8)	18 (28.1)
Shows compassion	1(1.6)	1(1.6)	10 (15.6)	24 (37.5)	28 (43.8)
Demonstrates empathy	-	5 (7.8)	16 (25.0)	23 (35.9)	19 (29.7)
Advocates patients' interest over one's interest	2 (3.1)	7(10.9)	15 (23.4)	26 (40.6)	14 (21.9)

Table 3: Students' perception of professionalism: accountability and respect

Perceptions of professionalism in radiography practice	Responses (five-point Likert scale)				
	Never	Little	Some	Much	Great deal
Accountability [*n* (%)]					
Upholds scientific standards, bases decisions on scientific evidence & experience	2 (3.1)	5 (7.8)	17 (26.6)	20 (31.3)	20 (31.3)
Works collaboratively and respectfully within a team to contribute to research	1 (1.6)	-	6 (9.4)	31 (48.4)	26 (40.6)
Participates in corrective action processes toward those who fail to meet professional standards of conduct	-	6 (9.4)	20 (31.3)	30 (46.9)	7 (10.9)
Recognizes one's limitations	1(1.6)	5 (7.8)	19 (29.7)	21 (32.8)	18 (28.1)
Assumes personal responsibility for decisions about patient care	3 (4.7)	4 (6.3)	24 (37.5)	25 (39.1)	8 (12.5)
Represents information and action in a truthful way	-	-	7 (10.9)	29 (45.3)	28 (43.8)
Respect in professionalism					
Avoids offensive speech that offers unkind comments and unfair criticisms of others	-	1 (1.6)	5 (7.8)	25 (39.1)	33 (51.6)
Appreciates and respects the diverse nature of research subjects, and honours these differences in one's work with them	1 (1.6)	3 (4.7)	16 (25.0)	22 (34.4)	22 (34.4)
Respects individuality, the rights, and diversity of thoughts of colleagues and students	-	3 (4.7)	12 (18.8)	20 (31.3)	29 (45.3)
Respects patient's autonomy, and help them to make informed decisions	-	-	11 (17.2)	22 (34.4)	31 (48.4)
Acts in ways that show a commitment to confidentiality		4 (6.3)	7 (10.9)	19 (29.7)	34 (53.1)

In professional practice, maintaining partnerships that do not compromise one's privacy or sexual advantage was rated highly (60.9%), along with exhibiting compassion for patients (43.8%). As a result, the students believed it was important to express empathy (35.9%), advocate for patients' interests over one's own (40.6%), and show a readiness to initiate and offer support toward colleagues' professional and personal growth (43.8%).

The students agreed with the findings in Table 3 that there was a strong need for accountability in professional practice, citing the importance of working cooperatively and respectfully within a research team (48.4%), participating in corrective procedures for those who do not uphold professional standards of conduct (46.9%), accurately representing the information (45.3%), and taking personal responsibility for decisions regarding patient care (39.1%). Only 31.3% of students indicated that they thought it was important or very important to respect scientific standards and make judgments based on scientific facts and expertise.

The students held demonstrated respect in high regard as being extremely important in professional activity. Most students agreed that acting in ways that demonstrated a commitment to confidentiality (53.1%), respecting the rights, individuality, and diversity of thoughts of co-workers and students (45.3%), respecting patients' autonomy, and assisting them in making decisions (48.4%), and avoiding offensive speech that offers unkind comments and unfair criticisms to others (51.6%) were particularly noteworthy. When asked whether they were "professionally attired in a manner that is polite to others," more students (40.6%) responded positively than others (21.9%).

Impacts on Professionalism and Challenges

The outcomes of the students' assessment of professionalism exhibited in the practice, the associated impact, and the challenges are presented in Table 4. The majority of students (59.4%) believed that radiographers' professional practice had a beneficial effect on their clinical training. They specifically thought that good training, better healthcare service delivery, an increase in professionalism, respect for patients and other healthcare professionals, and a decrease in accidents in imaging rooms and treatment floors would all have a positive effect on professionalism in radiography practice. Many of them (43.8%) indicated that better healthcare services were provided as a result of radiographers' professional practice.

Table 4: Assessments of professionalism, positive and negative impacts of professionalism

Questions	Response	*n*
Assessments of professionalism in radiography practice		
Do you think radiographers practice professionally?	None	0 (0.0%)
	Few	26 (40.6%)
	Most	36 (56.3%)
	All	2 (3.1%)
Positive impacts on professionalism in radiography practice		
Response to the impact of the current state of professionalism in radiography practice in Ghana	Instils good training in the students	17 (25.6%)
	Better healthcare service delivery	28 (43.8%)
	Improves the professionalism status of the profession	6 (9.4%)
	Respect from other healthcare professionals and patients	11 (17.2%)
	Reduction in the incidence of accidents in the imaging rooms and treatment floors	4 (6.3%)
Negative impacts on professionalism in radiography practice		
Response to the impact of the current state of professionalism in radiography practice in Ghana	Student radiographers lose interest in the profession	18 (28.1%)
	Poor healthcare service delivery	22 (34.4%)
	Students tend to imitate the bad professional practice	13 (20.3%)
	The bad image of the profession	8 (12.5%)
	Brings about a dichotomy in theory and practical	6 (9.37%)
	Challenges	
Do you observe any challenges associated with professionalism in radiography practice during clinical training?	Yes	46 (71.9%)
	No	18 (28.1%)
What are the observed challenges associated with professionalism in radiography practice?	Inadequate materials	23 (35.9%)
	Increase in workload at the imaging rooms and treatment floors	33 (51.6%)
	The unwillingness of radiographers and radiologists to teach students	11 (17.2%)
	Inappropriate dressing exhibited in the imaging room and treatment floors by superiors	23 (35.9%)
	Low levels of knowledge exhibited by radiographers in patient management and care	29 (45.3%)
	Language barrier	5 (7.8%)
	The dichotomy between theory and practice	14 (21.9%)

Contrarily, a majority of the students believed that the two activities that had the greatest negative effects on professionalism were radiographers' failure to adhere to good professionalism (28.1%) and their unprofessional practice (34.4%). These students reasoned that a lack of professionalism indicated negative perceptions of the profession (12.5%) as well as the artificial dichotomy created between theory and practice (9.4%).

Obstacles to professional practice may exist. This was confirmed by many (71.9%) students who went on to list increased workload in the imaging rooms and treatment floors (51.6%), low levels of patient management knowledge displayed by radiographers (45.3%), insufficient supplies (35.9%), and inappropriate dressing displayed by radiographers in the imaging rooms and treatment floors (31.3%) as major challenges to professionalism. A small number of students identified a gap between theory and practice (21.9%), radiographers and radiologists' reluctance to impart knowledge (17.2%), and a language barrier (7.8%) as additional barriers to professionalism in radiography practice.

Table 5 compares the students' average scores for the ABIM professionalism aspects concerning their academic and clinical knowledge levels, program specializations, and gender.

Table 5: Average scores for the ABIM professionalism elements

ABIM elements of professionalism, programme specialties, and sex		Score: Mean ± SD		*p*-value
		Level 300	Level 400	
Elements	Honour and integrity	4.05 ± 0.54	3.86 ± 0.48	0.146
	Excellence	3.99 ±0.64	3.88 ± 0.38	0.397
	Duty	3.96 ±0.55	3.86 ± 0.46	0.419
	Altruism	4.00 ± 0.57	3.77 ± 0.60	0.116
	Accountability	3.98 ± 0.47	3.75 ± 0.54	0.065
	Respect	4.36 ± 0.50	4.06 ± 0.56	0.027
	Total mean score	4.10 ± 0.60	3.90 ± 0.53	0.001
Programme specialty and gender		Scores (Mean ± SD) of ABIM elements of professionalism		
Programme specialty	Diagnostic radiography	4.00 ± 0.6		0.060
	Therapy radiography	3.80 ± 0.50		
Sex	Male	4.00 ± 0.60		0.059
	Female	4.00 ± 0.50		

Key: ABIM= American Board of Internal Medicine, SD=Standard deviation

Except for respect (p=0.027), where mean scores of 4.36 ±0.50 for Level 300 and 4.06 ±0.56 for Level 400 were achieved, there were no statistically significant variations between the scores for the various ABIM aspects of professionalism and the students' academic levels. The overall scores for the ABIM professionalism aspects and the students' academic levels, however, indicated a statistically significant difference (p=0.001) (Level 300: mean score = 4.10 ±0.60; Level 400: mean score = 3.90 ±0.53).

Demographically, there was no statistically significant difference between the scores for ABIM professionalism elements and the programme specialties (p=0.060), and between the scores for ABIM professionalism elements gender and (p=0.590).

Discussion

Perception of Professionalism: ABIM Honour and Integrity, Excellence Elements

The way that students approach their professional responsibilities is influenced by how seriously they take radiography practice. Most of the clinical students in this study felt that it was honourable to consistently, accurately, and honestly report data and that it was appropriate on the part of one's profession to reject a transgression of one's personal and professional code of conduct. This is in line with the literature, where it has been suggested that honour, integrity, and a refusal to violate one's personal and professional rules or code of conduct are signs of a person's respect for the highest standards of behaviour [2]. Following that, the students highlighted the need of adhering to pledges and duties with diligence as good professional practices. Only 25.0% of the students identified professional reporting of research and medical errors, in contrast to prior studies [2]. Therefore, students must understand the significance of reporting research and medical errors as well as the repercussions of not doing so to ensure professionalism in the field.

In professional settings, codes of conduct outline the expected values, norms, and obligations in terms of morality and ethics. Radiographers are expected to treat all patients with

respect and courtesy, regardless of their demographics, general health, or physical or mental impairment, according to the general code of conduct in radiography. In addition to these, it is needful for radiographers to communicate any concerns they may have to their superiors or seniors to ensure follow-ups in compliance with the code of conduct for the profession [8]. However, only a small portion of the students (20.3%) felt that it was crucial to declare any conflicts of interest when performing professional tasks and engaging in professional activities. The majority of them believed that promoting honesty and integrity in radiography practice by showing initiatives to eradicate discrimination was crucial. The majority of radiographers in Ghana handled their patients with care and without prejudice, according to Botwe et al's [9] findings, which lend support to this conclusion.

The goal of professionalism in radiography practice is to deliver healthcare with quality. According to Robins et al. [2], this necessitates deliberate attempts to go above and beyond traditional expectations and decisions for ongoing learning to advance professional skills. Accordingly, 40.6% of the students agreed that taking part in activities that aspire to excellence in clinical practice to ensure quality healthcare delivery greatly ensured professionalism, and 50.0% acknowledged the necessity of meaningfully supporting the radiography department's teaching mission.

Duty and Altruism

Some professional perspectives held by the students include the implementation of cost-effective care, volunteering abilities and knowledge, teamwork, and exhibiting adaptability in response to shifting requirements and priorities. Teamwork is a crucial component of professional behaviour, according to Salinas-Miranda et al. [10]. As evidence of this, a small number of students believed that attending faculty meetings, seminars, and student research presentations, as well as taking the time to examine and offer constructive criticism of their peers' work, were all significant manifestations of professionalism. This might be

because most students only associated professionalism with patients and not with radiographers. Therefore, it is important to educate pupils about the wide range of professionalism.

The majority of students (60.9%) agreed that maintaining connections that did not take advantage of one's privacy, sexual advantage, or financial gain attracted excellent professional behaviour. Similarly to this, Hryhorczuk et al. [11] observed that patients should never have their altruism compromised and that they should never be used in any way for private, financial, or sexual gain. Patients' interests are at the very heart of professionalism in all facets of healthcare practice. In this regard, this study demonstrated that certain students' perceptions of advocating for patients' interests over their own as a professional act were a cause for concern. This study, therefore, emphasizes the importance of informing the pupils about this campaign.

Challen et al.[12] claim that students in several other health professions demonstrate professionalism through their appearance, dress code, or personal hygiene. However, only a small percentage of radiography students (40.3%) felt that it meant a lot to be properly dressed in a way that was considerate of others, despite the appearances and dress codes of some of them suggesting otherwise. This conclusion points to the necessity for further instruction on appropriate attire and outward appearances in radiography practice.

Accountability and Respect

It has been reported in the literature that health professionals are accountable for their relationships with patients, colleagues, and the organization, as well as their appropriate use of scientific knowledge and data [2, 11]. Consistent with these findings, some students identified the necessity to participate in corrective action processes towards those who failed to meet professional standards of conduct, while very few students perceived so on the contrary. This could be explained by the fact that the students considered reporting or engaging in disciplinary

action processes could result in the dismissal of their colleagues, and damage inter-colleague relationships. The consideration is, however, unprofessional and must not be encouraged.

Upholding scientific standards and basing decisions on scientific evidence and experience, as well as the need for professional collaboration in research, and truthful representation of information and actions were agreed upon by some students a great deal. This is supported by Spandorfer [13] who averred that professionals are required to work collaboratively to improve patient care, show respect to each other, and engage in self-regulation processes such as problem-solving and discipline of members as a commitment to professional duties.

Rendering respect to patients during clinical practice was viewed by most students as a demonstrated commitment to confidentiality and therefore, professionally correct. In particular, some students affirmed the importance of respecting the rights, individuality, and diversity of thoughts expressed by colleagues and students. They also acknowledged appreciating and respecting the diverse nature of research subjects and honours, respecting patients' autonomy, and helping them make informed decisions as highly professional. This is in line with earlier suggestions that adhering to patients' confidentiality and showing respect for all persons are essential attributes of professionalism [10].

Comparison of the Professionalism Elements and the Demographics

No statistically significant difference between the individual elements of professionalism and the academic years of the students was found except for respect. Comparatively, these results are similar to the findings of Akhund et al. [14] who established no significant difference in the mean scores of the elements of professionalism or in the overall mean scores of professionalism among the various classes. Furthermore, the inferential analysis in this study showed no statistically significant difference between the professionalism elements, programmes of specialty, and gender respectively. However, a statistically

significant difference in the overall scores of professionalism and the radiography students in their clinical years was found. Akhund et al. [14] on the other hand, found an increase in professionalism scores for pharmacy students in the later years as a result of several professionalism-related curricular and co-curricular activities in the programme. An inclusion of professionalism-related courses in undergraduate radiography curricula would help enhance students' professional practice training.

Impacts of Professionalism

This study showed that the outcomes of health care via healthcare delivery services, respect from patients and other healthcare providers, and reduction of workplace accidents that put patients and health workers at risk were positively impacted by professionalism. According to the literature [8, 15], professionalism in radiography leads to accurate diagnosis, production of high-quality images, and improvement of both patient and staff safety. It also promotes trust and respect from patients and healthcare providers and increases the professionalism of radiography practice as a whole [2, 9, 16]. As similarly indicated by Challen et al. [12] the study identified that the implementation of professional practices by radiographers impacted on good clinical training of students.

Unprofessional practices present detrimental impacts on students and the profession. In particular, delivery of poor healthcare services, a dichotomy in theory and practice, loss of students' interest in the profession and unprofessional practice by both radiographers and students impacted negatively on professionalism. These findings are comparable to other studies which reported that unprofessionalism leads to poor healthcare delivery such as medical errors, and a dichotomy between theory and practice which makes students unable to integrate academic knowledge with clinical practice. This makes them lose interest in the profession respectively [9,12,17].

Challenges to Professionalism

The students identified an increase in workload, low levels of knowledge in patient care and management, inadequate materials, a dichotomy between theory and practice, and the unwillingness of some radiographers and radiologists to teach students as some challenges to professionalism in radiography practices. Other identified challenges included a lack of effective communication, dress code, and appearance. According to the students, increased workload causes radiographers and clinical students to rush patients through procedures resulting in non-compliance with some procedural actions such as forgetting to explain procedures to patients, inability to provide patients with protective clothing, the improper practice of handwashing techniques, and compromise in image quality. In another study, Ashong et al. [18] reported that a high workload resulted in an increased frequency of demonstrated unprofessional behaviour among radiographers. The students further indicated a tendency to imitate the unprofessional behaviour and low knowledge in patient care and management of some radiographers due to a lack of ethical commitment [9]. Attendance to the required number of referred cases in a specific time by radiographers, and education of clinical students to differentiate between professional and unprofessional behaviours are mitigating actions required to overcome these challenges and accordingly provide the requisite professional care.

The students identified the multiple uses of a single gown by patients and exposure of patients without gonadal shields in some procedures as unprofessional, and further described the inadequacy of working materials such as gonadal shields, and gowns, as de-motivators to enhancing professionalism. This is consistent with the findings of another study where the lack of some clinical materials including masks, gloves, and radiation protection in some hospitals during clinical placements were identified as challenges by the participants. Adequacy and

sustained efforts at providing basic clinical materials are essential to ensuring improved patient care and enhancing professionalism in the practice.

This and other studies [17, 20] confirm that the dichotomy between theory and practice presents a challenge for radiography students in Ghana, which results in loss of interest, confusion, and poor performance in clinical examinations. In respect of averting or abating the dichotomy between theory and practice, it is needful to synchronize theory and practice, and also have lecturers assume clinical tutorship responsibilities at the training facilities to present the same protocols and techniques at the clinical training.

Kyei et al. [17] reported that not all clinical supervisors at the training facilities are available to provide a positive learning environment, as noted by some of the students. Clinical tutors with more professional experience must be encouraged to impart their knowledge to students. Further to this, the students observed a lack of effective communication between radiographers and patients as a deficiency in professionalism. According to Challen et al. [12], ineffective communication with patients results in miscommunications which impact negatively professional practice and lead to poor healthcare service delivery.

The dress code and appearance of radiographers should be respectable to inspire patient confidence and accord dignity to the profession. Continued emphasis on the need for a respectable professional appearance, effective implementation, and compliance with the approved code of standards and dressing is required to address these challenges.

Conclusions

This study established that most of the clinical year students had a good perception of professionalism and identified that adherence to the approved code of standards or the lack thereof either impacted positively or negatively on professionalism in radiography practice. The inclusion of professionalism-related courses in the undergraduate curriculum is needed to address challenges and improve professional practice. A multicentre study will undoubtedly

highlight students' perceptions of professionalism in the various institutions and identify any variations observed in other clinical training sites.

Limitations

This was a single-centre study. Other universities in the country which offered undergraduate radiography programmes could not be included in the study as their programmes were relatively new and had no clinical year students at the time of this study year. In some institutions, in-semester clinical rotations are done at all or more academic levels of the programme other than the 3rd and 4th years. Completion of clinical rotations at only Level 300 (3rd year) and Level 400 (4th year) at this study site presented a limitation to the recruitment of study subjects which resulted in a smaller sample size.

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Conflict of interest

None declared

Author contributions

All authors of this article made substantial contributions to the study conception and design, data acquisition and analysis, drafts and revisions for important intellectual content, and final approval of the revised manuscript.

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