

Assessment of Level of Professionalism among Clinical Radiographers Practicing in Anambra State, Nigeria

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Abstract

Background: Professionalism is characterized by the degree of dedication displayed by individuals regarding the values and behavioral attributes of a specific career identity. This study was designed to evaluate the level of professionalism among clinical practicing Radiographers in Anambra State, Nigeria.

Materials and method: This was a descriptive survey conducted among 59 clinical radiographers selected using the convenience sampling technique. The self-administered hardcopy version of the questionnaire was given to each respondent after obtaining their consent and the completed questionnaires were retrieved immediately. The data obtained were analyzed using descriptive statistics.

Results: All 100% (n=59) of the respondents strongly agreed that selection of the right exposure factors/parameters is important in producing a quality image. On nursing approach to patients, majority 78.0% (n=46) of the respondents always treat all patients with respect and sensitivity most times. A majority 37.3% (n=22) of the respondents sometimes read books and articles on radiography practice. The majority 57.63% (n=34) of the respondents said they always approached work in an organized and professional manner as taught in updated courses.

Conclusion: A preponderance of Clinical Radiographers in this study, exhibited good professional approaches to work.

Keywords: Clinical; Professionalism; Radiographer

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Introduction

Professionals are generally defined in terms of a particular body of knowledge obtained through formal education, an expanded level of skills, some type of certification to prove entry to the profession, and a set of behavioral norms known as professionalism [1]. Professionalism describes the qualities, skills, competence, and behaviors you are expected to bring to any profession including radiography [2]. Professionalism is characterized by the degree of dedication displayed by individuals regarding the values and behavioral attributes of a specific career identity [3]. Moreover, professionalism indicates attitudes that represent high levels of identification with and commitment to a specific profession [4]. Healthcare practice today is changing and advancing rapidly and demands highly professional radiographers rather than just those with experience [5].

A clinical Radiographer is a trained professional who works on the specialized branch of medicine that uses the state of the art equipment and a range of techniques to capture images of the internal structures of the body. They are trained to use ionizing

and non-ionizing radiations to acquire the image for the body for diagnoses and treatment [6]. Clinical radiographers should work within the defined regulatory framework of personal and professional standards, adhering to a moral, ethical and professional code of practice, demonstrating autonomous practice within the scope of the profession, maintaining an awareness of individual limitations to the scope of practice, maintaining and developing professional expertise, delivering a safe and effective service that is caring and compassionate [2].

Radiography has been considered by some to be semi-professional since much of its knowledge base was built on

research undertaken by medical practitioners and physicists, rather than by radiographers [3]. Recent developments in the profession have contributed to its professionalism, but some papers argued that more is needed to be done by radiographers to make the profession truly 'professional'. This includes, above all, research skills, which are important in continuing professional development, clinical governance, and evidence-based healthcare [3]. Other developments thought necessary to increase professionalism are a culture of openness and participation with other professions, the sharing of good practice, and the general valuing of research and education [4]. Without these developments, radiography is unlikely to develop as a true profession, and radiographers needed to assess themselves as regards the level of professionalism they exhibit. The criteria of professionalism in radiography were first identified by [4]. The basic attributes of professionalism include educational preparation, research and scholarship participation in professional organizations, community service, competence, and continuing education, the code of radiographers, theory, and autonomy [4]. Based on these characteristics of professionalism, professionals can be distinguished from other workers. Professionalism in radiography has focused on the role of the expansion of radiographers in the rapidly changing healthcare environment. Radiography professionalism reflects how radiographers view their work and is a guide for the behaviors of radiographers in practice to ensure patient safety and quality care [7]. However, social, cultural, scientific, and technological elements have shaped the development of radiography as a profession [7].

In Nigeria, professionalization in radiography is still one of the most important issues for radiographers' leaders. A general assessment of the evolution of radiography in Turkey showed significant developments and changes have been observed; however, not all of them are regarded as satisfactory [8]. A similar assessment can equally be applied to radiographers in Nigeria to determine the extent of professionalism they exhibit since the evolution of radiography in Nigeria. The healthcare system in Nigeria is constantly undergoing moderate changes due to social, consumer-related, governmental, technological, and economic pressures. These changes will naturally influence the nature of healthcare organizations. The level of professionalism demonstrated by radiographers, and the resulting image created, is increasingly crucial in attracting clients.

Few studies have been carried out in metropolitan hospitals in different regions of Nigeria to identify the professional level of radiographers, the professional behavior of radiographers in different contexts, and the factors affecting professionalism [9]. A significant development in the process of professionalism occurred in Nigeria after the 1980s. However, there are still weak fields in radiography, such as scientific knowledge and autonomy, which need to be strengthened. Additionally, the radiography field has significant obstacles that hinder the adoption of professional identity, and hence the performance of professional roles related to it [10]. In the process of the professional development of radiography, various social, political, cultural, scientific, and technological factors affect these obstacles which may impede the professional development of radiographers

and their professional behaviors [11]. Therefore, the purpose of this study was to assess the level of professionalism among the clinical radiographers working in public and private hospitals in Anambra State and to identify factors that may influence the professional behavior of clinical radiographers.

Materials and Methods

This was a cross-sectional questionnaire-based survey conducted among clinical practicing Radiographers in Anambra State, Nigeria. All the clinical practicing radiographers were sampled based on the numerical strength available using a convenient sampling technique. All clinical practicing radiographers with at least B.Sc degree or its equivalent and must have practiced for a minimum of one year and above in either public or private health facility were included in this study. Ethical clearance was of no high essence in this study but a letter of cooperation was sent to the heads of various public or private health facilities to be used for data gathering from the clinical radiographers practicing there, although the high level of confidentiality of information was obtained was observed. The participant's consent was adequately obtained using a written informed consent form.

A 30 items structured and self-completion questionnaire designed by the authors in line with the aim of the study was used as an instrument for data collation. The questionnaire comprises two sections. The first section, captured information on the respondent's socio-demographic variables while the second section addressed questions on professionalism. The validity of the questionnaire was calculated using the index of item objective congruence (IOC) method used by the previous author [12,13]. The content validity of the questionnaire was assessed by calculating the IOC. Based on the Index parameters, an IOC score >0.6 was assumed to show excellent content validity. All the scores obtained in this study for all the items of the questionnaire after IOC interpretation were >0.6 . A pilot study was carried out among twenty radiographers who were not included in this study. A Cronbach alpha reliability value of 0.89 for internal consistency was obtained before data collection commenced.

A hard copy version of the questionnaire was shared among all practicing clinical radiographers both in public and privately owned hospitals/centers based on the set inclusion criteria for this study. Filled questionnaires were retrieved from the participants immediately. Collected data were entered into Epi Data Version 3.1 and exported into SPSS for windows version 21 for analysis. Descriptive analysis was conducted to describe patients' socio-demographic characteristics while the discrete data were described using frequencies and percentages, while the continuous variables were described using means and standard deviation.

Results

Descriptive statistics of the participation's socio-demographic variables

Majority 67.8% (n=40) of the respondents were within the age group of 30-40years, followed by age group 20-30 years. 20-30

years (n=12) and the least was age group 50-60 years which is 1.69% (n=1). A greater number 57.63% (n=34) of the respondents were males while females accounted for 42.37% (n=25) with male to female ratio of 1:1.4. Out of 59 respondents, 55.93% (n=33) were basic radiographers as highest, followed by principal radiographers 20.34% (n=12) and the least 18.64% (n=11) were senior radiographers. The majority 71.19% (n=42) were B.Sc degree holders and the least 1.69% (n=1) was diploma holder. The highest 54.2% (n=32) percentage of the respondents had 1-5 years clinical practice experience, followed by those with 5-10 years clinical practice experience 28.81% (n=17) and the least 1.69% (n=1) had 15-20 years clinical practice experience (Table 1).

Respondents physical appearance evaluation

If the respondent appears neat and smart on their clinical gown while on duty was evaluated and the result revealed that majority 81.36% (n=48) said they always appear neat and smart on their clinical gown while on duty, followed by those that often appear neat and smart on their clinical gown while on duty 15.25% (n=9). A majority 49.2% (n=29) of the respondents said they don't always work with fixed long fingernails, eyelashes, or wear big rings while working, followed by those that never

Table 1 Frequency distribution of socio-demographics of the respondents.

Socio-Demographic Variables	Frequency	Percentage
Age Group		
20-30 yrs	12	20.33
30-40yrs	40	67.8
40-50 yrs	4	6.78
50-60 yrs	1	1.69
60 and above	2	3.38
Total	59	100
Gender		
Males	34	57.63
Females	25	42.37
Total	59	100
Rank/designation		
Basic Radiographer	33	55.93
Senior Radiographer	11	18.64
Principal Radiographer	12	20.34
Chief Radiographer	1	1.69
Director of Radiographer	2	3.38
Total	59	100
Level of Education/Qualification		
Diploma	1	1.69
B.Sc	42	71.19
PGD	6	10.17
M.Sc	8	13.56
Ph.D	2	3.38
Total	59	100
Years of clinical practice experience		
1-5 years	32	54.24
5-10 years	17	28.81
10-15 years	8	13.56
15-20 years	1	1.69
20 yrs & above	2	3.38
Total	59	100

32.2% (n=19) and the least 3.39% (n=2) said they sometimes fixed long fingernails, eyelashes or wear big rings while working (Table 2). A majority 38.8% (n=23) of the respondents always wore their clinical gown while attending to patients and the least 5.08% (n=3) were those that never wore their clinical gown while attending to patients. Greater numbers 40.68% (n=24) of the respondents had sometimes worn face masks when necessary, followed by 38.98% (n=23) that had always worn face masks when necessary, and none of the respondents had not worn face masks when necessary. Greater proportion 74.58% (n=44) of the respondents always wore hand gloves when necessary and the least 1.69% (n=1) said they never worn hand gloves when necessary (Table 2).

Table 2 Frequency distribution of the respondents' responses on physical appearance.

Responses on respondent's physical appearance	Frequency	Percentage
Do you make sure you appear neat & smart on your clinical gown while on duty		
Never	0	
Rarely	1	1.69
Sometimes	1	1.69
Often	9	15.25
Always	48	81.36
Total	59	100
Do you make sure; you don't work with fixed long finger nails, eye lashes or wear big rings while working.		
Never	19	32.20
Rarely	4	6.78
Sometimes	2	3.39
Often	5	8.47
Always	29	49.15
Total	59	100
Do you always put on clinical gown while attending to patient?		
Never	5	8.47
Rarely	3	5.08
Sometimes	14	23.72
Often	14	23.72
Always	23	38.98
Total	59	100
Do you wear face mask when necessary		
Never	0	
Rarely	3	5.08
Sometimes	24	40.68
Often	9	15.25
Always	23	38.99
Total	59	100
Do you wear hand gloves when necessary?		
Never	1	1.69
Rarely	0	
Sometimes	4	6.78
Often	10	16.95
Always	44	74.58
Total	59	100

Evaluation of quality of respondents technical approach to work

Out of 59 respondents, 91.53% (n=54) strongly agreed that lead apron is very essential during radiation, followed by those 6.78% (n=4) that agreed. A majority 96.61% (n=57) of the respondents strongly agreed that it is important to reduce to a minimum the number of repeated images while those that agreed and disagreed were 1.69% (n=1) each respectively. A greater proportion 79.66% (n=47) of the respondents strongly agreed that it is important to view an image in a view box before deciding on image growth. All 100% (n=59) of the respondents strongly agreed that selection of the right exposure factors/parameters is important in producing qualified images. A greater number 86.44% (n=51) of the respondents strongly agreed that positioning affects an image quality/outcome (Table 3).

Respondents nursing approach to patients

From table 4, showing the respondents' nursing approach to patients, the majority 78.0% (n=46) of the respondents always treat all patients with respect and sensitivity most times. A greater number 47.46% (n=28) of the respondents always ensured that patients understood what is happening around them most times. Out of 59 respondents, 71.22% (n=42) never allowed their likings or disliking of patients to affect their approach to them. A greater proportion 67.79% (n=40) of the respondents always listened carefully to patient's concerns during the investigation. Most 28.81% (n=17) of the respondent sometimes ensured that vital signs are taken before, during, and after investigation if need be and the least 5.08% (n=3) never ensured that vital signs are taken before, during, and after investigation if need be (Table 4).

Continuous professional development on professionalism as an approach

A majority 37.3% (n=22) of the respondents sometimes read books and articles on radiography practice, followed by those that often read books and articles on radiography practice 30.51% (n=18) and the least 3.39% (n=2) never read books and articles on radiography practice. A good number 32.2% (n=19) of the respondents sometimes update their continuous professional development (CPD) portfolio on radiography practice with RRBN or any other agency. A greater number 44.1% (n=26) of the respondents never attended CPD on professional ethics and regulation before followed by those that sometimes attended CPD on professional ethics and regulation 23.7% (n=14). Out of 59 respondents, those that never attended CPD on nursing care before were highest 64.41% (n=38), and the least 5.08% (n=3) were those that often attended CPD on nursing care before. A majority 28.81% (n=17) of the respondent always attends CPD on radiation protection and the least 10.17% (n=6) rarely attends CPD on radiation protection. The majority 57.63% (n=34) of the respondents said they always approached work in an organized and professional manner as taught in an update course. A greater number 50.85 % (n=30) of the respondents always care about promoting clinical co-operation during work in their environment as a standard best practice learned during the CPD course (Table 5).

Table 3 Frequency distribution of respondent's responses on quality technical approach to work.

Respondent's responses on quality technical approach to work.	Frequency	Percentage
Do you agree that lead apron is very essential during working with radiation		
Strongly agree	54	91.53
Strongly Disagree	1	1.69
Neither agree/Nor disagree	0	
Agree	4	6.78
Disagree	0	
Total	59	100
Do you agree that is important to reduce to minimum, the number of repeats of an image		
Strongly agree	57	96.62
Strongly Disagree	0	
Neither agree/Nor disagree	0	
Agree	1	1.69
Disagree	1	1.69
Total	59	100
Do you agree that is important to view an image in a viewing box before taking decision on an image quality?		
Strongly agree	47	79.66
Strongly Disagree	0	
Neither agree/Nor disagree	0	
Agree	7	11.86
Disagree	1	1.69
Total	59	100
Do you agree that selection of the right exposure factors/ parameters are important in producing quality image?		
Strongly agree	59	100
Strongly Disagree	0	
Neither agree/nor disagree	0	
Agree	0	
Disagree	0	
Total	59	100
Do you agree that positioning affects an image quality/outcome		
Strongly agree	51	86.44
Strongly Disagree	2 Persons	3.39
Neither agree/nor disagree	0 Person	
Agree	6 Persons	10.17
Disagree	0 Person	
Total	59	100

Discussion

Professionalism is characterized by the degree of dedication shown by individuals regarding the values and behavioral attributes of a specific career identity [3].

The specific characteristics that clinical radiographers possess as a professional were evaluated and the result of this study on the respondent's physical appearance, revealed that majority of them always appears neat and smart on their clinical gown, which is one of the features that usually reassured any patients that come into any radiography department.

Table 4 Frequency distribution of respondent's responses on nursing approach.

Respondent's responses on nursing approach	Frequency	Percentage
Do you treat all patients with respect and sensitivity most times		
Never	1	1.69
Rarely	0	
Sometimes	3	5.08
Often	9	15.25
Always	46	77.97
Total	59	100
Do you make sure patients understand, what is happening most times around them?		
Never	0	
Rarely	3	5.08
Sometimes	9	15.25
Often	19	32.20
Always	28	47.46
Total	59	100
Do you allow your liking or disliking of a patient affect your approach to them?.		
Never	42	71.19
Rarely	10	16.95
Sometimes	4	6.78
Often	1	1.69
Always	2	3.39
Total	59	100
How often do you listen carefully to patients concern during investigation		
Never	0	
Rarely	0	
Sometimes	2	3.39
Often	17	28.81
Always	40	67.79
Total	59	100
How often do you make sure that vital signs are taken before, during & after investigation if need be		
Never	3	5.08
Rarely	11	18.64
Sometimes	17	28.81
Often	14	23.73
Always	14	23.73
Total	59	100

Table 5 Frequency distribution of respondent's responses on continuous professional development on professionalism as an approach.

Respondent's responses on continuous professional development on professionalism as an approach	Frequency	Percentage
How often do you read books and articles on Radiography practices?		
Never	2	3.39
Rarely	6	10.17
Sometimes	22	37.29
Often	18	30.51
Always	11	18.64
Total	59	100

How frequently do you update your CPD portfolio on Radiography practice with RRBN or any other agency?		
Never	9	15.25
Rarely	13	22.03
Sometimes	19	32.32
Often	7	11.86
Always	11	18.64
Total	59	100
Have you attended CPD on professional ethics and regulations before?		
Never	26	44.07
Rarely	6	10.17
Sometimes	14	23.73
Often	7	11.86
Always	6	10.17
Total	59	100
Have you attended CPD on nursing care before		
Never	38	64.41
Rarely	7	11.86
Sometimes	7	11.86
Often	3	5.09
Always	4	6.78
Total	59	100
How often do you attends CPD on Radiation Protection		
Never	10	16.95
Rarely	6	10.17
Sometimes	16	27.12
Often	10	16.95
Always	17	28.81
Total	59	100
Respondent's responses on professionalism as it relates to our working environment	Frequency	Percentage
Do you check the state of your working equipment before start of work as may be stipulated in a CPD Course?		
Never	1	1.67
Rarely	3	5.08
Sometimes	9	15.25
Often	12	20.34
Always	34	57.63
Total	59	100
How frequent do you approach work in an organized/professional manner as thought in an update course?		
Never	0	
Rarely	0	
Sometimes	6	10.17
Often	19	32.2
Always	34	57.63
Total	59	100
Do you cross check your safety measures before starting work daily as learnt in an update course?		
Never	1	1.69
Rarely	7	11.86
Sometimes	16	27.12
Often	9	15.25
Always	26	44.07
Total	59	100
Do you agree that your working environment is an element of professionalism as may be seen in an update course environment?		
Never	3	5.08

Rarely	10	16.95
Sometimes	9	15.25
Often	12	20.34
Always	25	42.37
Total	59	100
Do you care promoting clinical co-operation among other professionals in your working environment as a standard best practices learnt during CPD Course		
Never	0	
Rarely	0	
Sometimes	9	15.25
Often	20	33.89
Always	30	50.85
Total	59	100

The respondent's quality of technical approach to work was evaluated and the result of this study shows that the majority of the respondents strongly agreed that good quality of technical approach to work is a very essential characteristic of a clinical radiographer. The technical approach to work evaluated in this study includes but is not limited to; wearing of the lead apron, minimized the number of repeated images, use of image viewing box, selection of appropriate exposure factors, and choice of appropriate patient's positioning to achieve good image quality. The approaches to work indicate the level/areas of clinical radiographers' professionalism competency, which ensures patient's protection, safety, and security in the radiography department. This finding is in agreement with the statement documented by Larsson [14]. According to Larsson [14], planning and preparing for the radiological examination and treatment is one of the radiographer's areas of competency or professionalism. Being well prepared indicated optimal planning for taking care of patients and performing the radiological examination in a professional approach [14]. Also, Larsson [14], noted that ensuring quality was related to professional competence in the technical and administrative area, which at the same time ensured patient safety. The small number of respondents that did not observe the quality technical approach to work could be attributed to the human factors of life. According to Donabedian [15], an organization or individual can appear well structured and functioning, there are usually human factors, and one way of reducing human error is using clinical audit.

References

- 1 World Health Organization (2011) Transformative Scale Up of Health Professional Education. Geneva, Switzerland.
- 2 Hisar F, Karadag A (2010) Determining the professional behaviour of radiography executives. *Int J Radiography Pract* 16: 335-341.
- 3 Karadağ A, Hisar F, Elbaş NÖ (2007) The level of professionalism among radiographers in Turkey. *J Nurs Scholarsh* 39: 371-374.
- 4 Miller BK, Adams D, Beck LA (2010) A behavioral inventory for professionalism in nursing. *J Prof Nurs* 9: 290-295.

The result of this study revealed that the majority of the respondents always shows a good nursing approach to their patients by showing them respect, ensuring they understood what was happening around them, never allowed their liking or disliking of patients to affect their approach to them, always listened carefully to the patients' concern during investigations and ensuring that vital signs are adequately taken. These approaches by clinical radiographers ensured maximum cooperation on the part of the patients before during and after radiological investigations. This finding implies that clinical radiographers showed more caring attitudes towards their patients. The importance of clinical radiographers exhibiting good nursing care approaches to their patients before, during, and after radiological investigations has been reported by several authors. According to Boot [16], nursing care in a radio-diagnostic context involves interacting with patients while respecting their privacy and personal space, focusing on patient's safety, comfort, and dignity in addition to dealing with their fears and anxiety. Paterson [17], noted that it is essential that the radiographers is familiar with the problems involved and can support the patients during the radiographic examinations. Similarly, Halldorstir and Harmrin [18] and Halldorstir [19], stated that patients, especially those who are chronically ill, are vulnerable and in need of caring when in the hospital. Hence, the radiographer's requires knowledge of nursing care in addition to specialized radiography competence. A professional such as a radiographer is placed in a field of great tension, encouraging the patient, performing a radiographic investigation or intervention achieving internal and external goals and strategies while at the same time providing nursing care [20]. According to Niemi and Paassivaara [21], nursing care is an important aspect of the radiographer's work, which cannot be performed by other nursing staff.

Conclusion

A preponderance of the clinical radiographers in this study showed good professionalism approaches to their duties and patients by taken into consideration all aspects of their professional approaches such as nursing care approaches, radiation protection measures and knowledge update through continuous professional development programme.

Conflict of Interest

None declared among the authors.

- 5 Hampton DL, Hampton GM (2000) Professionalism and the nurse-midwife practitioner: an exploratory study. *J Am Acad Nurse Pract* 12: 218-225.
- 6 Wynd CA (2003) Current factors contributing to professionalism in nursing. *J Prof Nurs* 19: 251-261.
- 7 Cerit B, Dinç L (2013) Ethical decision-making and professional behaviour among nurses: a correlational study. *Nurs Ethics* 20: 200-212.
- 8 Adams D, Miller BK (2001) Professionalism in nursing behaviors of nurse practitioners. *J Prof Nurs* 17: 203-210.

- 9 Kim-Godwin YS, Baek HC, Wynd CA (2010) Factors influencing professionalism in nursing among Korean American registered nurses. *J Prof Nurs* 26: 242-249.
- 10 Ohlem J, Segeston K (2001) The professional identify of the nurse: Concept analysis and development. *J Adv Nurs* 28: 720-727.
- 11 Ergül Ş, Ardahan M, Temel AB, Yıldırım BO (2010). Bibliometric review of references of nursing research papers during the decade 1994-2003 in Turkey. *Int Nurs Rev* 57: 49-55.
- 12 Turner RC, Carlson L (2003) Indexes of item-objective congruence for multidimensional items. *Int J Test* 3: 163-171.
- 13 Ogolodom MP, Mbaba AN, Alazigha N, Erundu OF, Egbe NO, et al. (2020) Knowledge, Attitudes and Fears of HealthCare Workers towards the Corona Virus Disease (COVID-19) Pandemic in South-South, Nigeria. *Health Sci J Sp Iss* 1: 002.
- 14 Larson W, Lunderg N, Hillergard K (2009) Use your good judgment. Radiographers' knowledge in image production work. *Radiography* 15: 11-21.
- 15 Donabedian A (1966) Evaluating the quality of medical care. *Milbank* 83: 691-729.
- 16 Boot L (2008) The radiographer–patient relationship: Enhancing understanding using a transactional analysis approach. *Radiography* 14: 323- 331.
- 17 Paterson A (2012) Cancer: Implications for pre-registration radiography curricula. *Radiography* 18: 47-50.
- 18 Halldorsdottir S, Hamrin E (1996) Experiencing existential changes: the live experince of having cancer. *Cancer Nurs* 19: 139-136.
- 19 Halldorsdottir S (2008) The dynamics of the nurse-patient relationship: Introduction of the synthesized theory from the patients perspective. *Scand J Caring Sci* 22: 643-652.
- 20 Murphy FS (2006) The Paradox of imaging technology: A review of the Literature. *Radiography* 12: 169-174.
- 21 Niemi A, Paaiivaara L (2007) Meaning contents of radiographers' professional identity as illustrated in a professiona Journal. A discourse analytical approach. *Radiography* 13: 258-264.
- 22 Price RC, Le Mausurier SB (2007) Longitudinal changes in extended roles in radiography: A new perspective. *Radiography* 13: 18-29.
- 23 Fridell K, Asperlin F, Edgren L, Linskold L, Lundberg N (2008) Pacs influence on the radiographers work. *Radiology* 15: 121- 133.
- 24 Meretoja R, Erikson E, Leino-kilipi H (2002) Indicators for competent nursing practice. *J Nurs Manag* 10: 95-102.
- 25 Baker DP, Day R, Salas E (2006) Team work as an essential component of high reliability organisations. *Health Serv Res* 41: 1576-1598.
- 26 Challen V, Laanelaid Z, Kukkes T (2017) A qualitative study of perceptions of professionalism amongst Radiography students. *Radiography* 23: S23-29.