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Professionalism Perspectives among Medical Imaging Students in UiTM Puncak Alam.

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Abstract:

Professionalism is an integral concept that concerns the attitudes and behaviours as indicator of level of professionalism presented in radiography profession. Thus, professionalism cultures that have been practiced by radiography students must be recognized to inculcate professionalism core values in future ethical and responsible radiographers. This study aimed to explore the personal evaluation of professionalism in terms of its fundamental elements among medical imaging students and recognise the significant differences based on demographic characteristics. The study population comprised of medical imaging students from UiTM Puncak Alam Campus through cross-sectional study by using validated questionnaires with regards to nine elements of professionalism attributes on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The simple random sampling technique was used to select the sample. The data were then analysed by using (SPSS) version 21.0 with statistical significant accepted at P value less than 0.05. A total of 205 medical imaging students successfully completed the questionnaires. Overall, the mean total score for all participants was 171.1 (SD: 14.34). The result showed no significant differences in all nine elements of professionalism between male and female participants (p=0.12). However, female students scored higher level of professionalism than male students. Among all nine elements of professionalism observed, there were two elements with statistically significant differences between all seven groups of semester. In term of respectful, sixth semester diploma students obtained significantly higher score than second semester degree students (P=0.036). Meanwhile for self-directed learning, sixth semester diploma students obtained higher score than fourth semester diploma students (P=0.014). Out of 7 groups of semester students, diploma students of sixth semester scored highest professionalism score and diploma students of fourth semester scored the lowest professionalism score (p=0.04). Henceforth, efforts must be made to improve students' exposure and training on professionalism core values to produce a quality future radiographer.

Keywords: Professionalism, medical imaging students, radiography profession.

1. INTRODUCTION

Professionalism is a fundamental concept, by which professional attitudes and behaviours are known in indicating the level of professionalism presented in every single healthcare profession including radiographers [1]. Although, the word of 'professionalism' has varied definitions, it has three main pillars which are primary of patient welfare, respect for patient autonomy, and promotion of social justice in health care [2]. These pillars are outlined from a charter that is endorsed by the Radiological Society of North America (RSNA), American Board of Radiology, and the American College of Radiology (ACR) [2]. In addition, The Royal College of Physicians states that professionalism as a set of values, relationships, and behavior that foster trust by the public towards healthcare professionals. Therefore, professionalism is one of utmost values that should be developed in early radiography students as a future radiographer [3].

Due to increasing emphasis on social-cooperative relationship nowadays, values of professionalism of healthcare workers especially radiographers are being questioned, as the challenges faced by them such as technological advances, political forces and patient's rights eventually led to frustration [4]. These challenges can cause a change in practice routines and conditions to perform professional work [5]. This can be supported by recent study in which professionalism among healthcare professions includes radiography is under increasing scrutiny [3]. Eventually, the problem arises over various reported unprofessional behaviors recently in healthcare professions, aside from litigations that had become a routine in healthcare society [6]. In fact, in clinical settings, radiography students are challenged by knowledge of exposure factors and practical-simulated learning. Thus, high critical thinking, awareness, and strategic planning are acquired in solving a specific situation that needs to be addressed, which then produces promising satisfaction quality of work. This also emphasized that high confidence, perceived competence, and experiences are essential elements

in embracing difficulties to achieve top satisfaction on the quality of the result. Hence, there is the need for transformation education in the radiography field as the role of a radiographer is expanding rapidly.

Besides that, in this modern healthcare practice recently focus on social-cooperative relationship in every aspects of decision making [4]. Hence, the abilities in making good decisions are essential elements in the Code of Professional of Conduct for Radiographers [3]. It can be argued whether the radiographic community has given good enough commitment in teaching and assessing radiography students' professionalism and embody their suitable professional identity [7]. Thus, it is important to recognize the culture of professionalism practiced by radiography students in order to develop high quality of future radiographers and diagnostic imaging services.

Whiting [7] noticed the levels of professionalism among radiography students appeared to be diminished while recent study proved that radiography students had an innate understanding of professionalism in their study [4]. It was reported that radiography students were lacked in cognitive awareness of professional expectations and also ignorant of the impact of their wrongdoings [7]. Certainly, it is vital for students to familiar with the moral, ethical and legal implications of their every action. Due to all these factors, hence increase in the need of stressing the importance of professionalism as students should practice and maintain high level of integrity and professionalism from early educational field. Educating students about professionalism is very crucial, given society's demand for more excellent quality of patient care [4]. This could address the issue of professionalism to provide ethical, moral and safe patient care while can encounter future challenges in delivering healthcare service. Besides that, research on professionalism among radiography students is still limited although professionalism is an integral part of the radiography curriculum in many countries including Malaysia [6].

Therefore, it is appropriate to assign this research in exploring the personal evaluation of professionalism in terms of its fundamental elements among medical imaging students and recognize the significant differences based on demographic factors which are gender and the semester of study. Result of this study may lead to further actions taken to produce highly professional and committed radiographers that can deal with complexities in healthcare services and embrace to multidimensional professional beliefs for the Malaysian community.

2. MATERIALS AND METHODS

2.1 Study design and population

This cross-sectional study was carried out among diploma and degree students of Medical Imaging in UiTM Puncak Alam. The study data were collected during the period of March to May 2020.

2.2 Research Instrument

This study was adapted from previously used and validated questionnaires from another similar study regarding the professionalism perspectives among students developed by Haque et al. [8] and has been asked for permission to use. The questionnaire consisted of two sections, section A and section B respectively. Section A comprised of five questions regarding the demographic details of the participants. Section B comprised of 44 structured questions contained nine core elements of professionalism attributes which were honesty, accountability, confidentiality, respectfulness, responsibility, compassion, communication, maturity, and self-directed learning to explore the extent to which the concept of professionalism was effectively utilized by medical imaging students. Each question was assessed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A pilot study was conducted to assess the comprehensibility of the questions on 30 students before the data collection process to assess its validity and reliability. The reliability of the questionnaire was evaluated using the Cronbach's alpha test. The Cronbach's alpha significant value in between (0.71–0.91) indicated as a good measure of reliability or internal consistency of the questionnaire [9]. The Cronbach Alpha's was calculated as 0.869. Hence, it can be concluded that the questionnaire had an acceptable internal consistency.

2.3 Sampling and data collection

This study's sample size was calculated based on a 95% confidence level and 5% accepted error. The response distribution applied was 50% (using Raosoft Inc). It revealed the minimum sample size to be 191. The simple random sampling technique was used to select the sample. All medical imaging students in UiTM Puncak Alam were approached electronically via emails and google form were given to them due to coronavirus pandemic. Explanations were given regarding the aim and purpose of this research. The students were advised that participation in this study was completely voluntary and the data collected would be kept as confidential.

2.4 Statistical analysis

Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyze the data obtained from the survey with statistical significant accepted at P value less than 0.05. The continuous data were described as mean and standard deviation (SD) while the categorical data were described as frequency (n) and percentage (%). Independent t-test and one-way analysis of variance (ANOVA) were used to determine the difference between the independent variables (demographic characteristics) and dependent variables (elements of professionalism).

3. RESULTS AND DISCUSSION

3.1 Socio-demographic characteristics

Out of 205 participants, 21% (43) were male and 79% (162) were female. A total of 14.6% (30), 12.7% (26), 14.6% (30), 14.6% (30), 14.6% (30), 13.7% (28) and 15.1% (31) of the participants were from diploma students second semester, diploma students fourth semester, diploma students sixth semester, degree students second semester, degree students fourth semester, degree students sixth semester and degree students eighth semester, respectively (Table 1).

Table 1: Demographic characteristics of the study participants (n=205)

Variable	Frequency (n)	Percentage (%)
Demographic characteristics		
Sex		
Male	43	21.0
Female	162	79.0
Age		
18 years old	3	1.5
19 years old	26	12.7
20 years old	46	22.4
21 years old	62	30.2
22 years old	10	4.9
23 years old	29	14.1
24 years old	20	9.8
25 years old	7	3.4
26 years old	2	1.0
Semester		
Diploma 2nd	30	14.6
semester	26	12.7
Diploma 4th semester	30	14.6
Diploma 6th semester	30	14.6
Degree 2nd semester	30	14.6
Degree 4th semester	28	13.7
Degree 6th semester	31	15.1
Degree 8th semester		

3.2 Professionalism Attributes

Overall, the mean total score for all participants was 171.1 (SD: 14.34). Meanwhile, the total mean scores were 22.63 (SD: 2.69), 18.82 (SD: 2.50), 14.37 (SD: 2.02), 24.66 (SD: 2.42), 23.79 (SD: 2.64), 16.77 (SD: 1.74), 18.39 (SD: 2.83), 23.56 (SD: 2.72) and 8.11 (SD: 1.19) for all nine elements of professionalism which are honesty, accountability, confidentiality, respectful, responsibility, compassion, communication, maturity, and self-directed learning, respectively (Table 2). Next, female participants' total mean of professionalism score was 171.90 (SD: 14.15) while male participants scored 168.07 (SD: 14.84), with no statistically significant difference (P=0.12). The result also showed no statistically significant differences in all nine elements of professionalism between male and female participants. However, female students scored higher level of professionalism than male students (Table 3).

Table 4 shows the mean of professionalism scores among participants in seven groups of semesters. Diploma students of sixth semester scored significantly higher score than diploma students of fourth semester (P=0.04). Among all nine elements of professionalism observed, there were two elements with statistically significant differences between all seven groups of semester. In term of respectful, sixth semester diploma students obtained significantly higher score than second semester degree students (P=0.036). Meanwhile for self-directed learning, sixth semester diploma students obtained higher score than fourth semester diploma students (P=0.014).

Table 2: Mean item scores of professionalisms by medical imaging students of UiTM Puncak Alam (n=205)

Elements of Professionalism	Item	Mean (SD)
Honesty	I am fair to people	3.88 (0.59)
	I am straightforward to people	3.53 (0.88)
	I do not tell lies	3.23 (0.92)
	I am truthful to people	3.82 (0.66)
	I keep my promise	4.04 (0.64)
	I admit mistakes	4.07 (0.58)
Total		22.63 (2.69)
Accountability	I am punctual	3.64 (0.91)
	I carry out my duty well	3.86 (0.65)
	I inform supervision/team when mistakes occur	4.02 (0.59)
	I am a good leader	3.31 (0.75)
	I complete assignments on time	4.00 (0.78)
Total		18.82 (2.50)
Confidentiality	I can keep secret accordingly	4.19 (0.55)
	I do not talk private issues of other people	2.82 (1.09)
	I don't gossip about a person's secret	3.50 (0.93)
	I act in accordance with known guidance	3.86 (0.60)
Total		14.37 (2.02)
Respectful	I greet my lecturer	4.20 (0.58)
	I always talk to senior, lecturer in polite tone	4.26 (0.56)
	I respect a person's decision	4.19 (0.54)
	I pay attention when the lecturer is giving lectures	3.91 (0.69)
	I can tolerate diversity	4.08 (0.58)
	I establish rapport with team members	4.01 (0.59)
Total		24.66 (2.42)
Responsibility	I try my best to do the task assigned	4.33 (0.56)
	I fix the mistake that I commit	4.15 (0.57)
	I prepare well before classes	3.15 (0.79)

	I am reliable	3.75 (0.66)
	I do not commit crime	4.26 (0.83)
	I never reject task that was assigned to me if I am capable of	4.14 (0.71)
Total		23.79 (2.64)
Compassion	I am considerate to other people	4.14 (0.54)
	I always reflect what I have done	4.12 (0.62)
	I always care about people	4.20 (0.56)
	I am willing to help people in need	4.32 (0.56)
Total		16.77 (1.74)
Communication	I can communicate well orally	3.70 (0.79)
	I can express my opinion as well	3.54 (0.80)
	I can use body language well if someone doesn't understand my language	3.76 (0.76)
	I can write well to the level of others understanding	3.71 (0.71)
	I allow talking without interruption	3.67 (0.75)
Total		18.39 (2.83)
Maturity	I think before making a decision	4.09 (0.66)
	I can manage relationships with others as well	3.91 (0.69)
	I am able to think critically	3.67 (0.69)
	I do my job in an organized method	3.82 (0.74)
	I can recognize and correct my mistake	3.88 (0.63)
	I am able to differentiate what is right and what is wrong	4.20 (0.55)
Total		23.56 (2.73)
Self-directed learning	I am able to learn independently	3.80 (0.76)
	I always try to improve myself	4.30 (0.61)
Total		8.11 (1.19)
Grand total score		171.1(14.34)

Table 3: Comparison of mean professionalism score by medical imaging students of UiTM Puncak Alam according to gender (n=205)

Elements of Professionalism	Mean (SD)		t-statistics (df)	P-value
	Male (n=43)	Female (n=162)		
Honesty	22.53 (2.33)	22.66 (2.79)	-0.271 (203)	0.787
Accountability	18.26 (2.62)	18.97 (2.46)	-1.670 (203)	0.097
Confidentiality	14.30 (2.46)	14.37 (1.90)	-0.249 (203)	0.804
Respectful	24.05 (2.48)	24.82 (2.39)	-1.878 (203)	0.062
Responsibility	23.21 (2.63)	23.94 (2.62)	-1.619 (203)	0.107
Compassion	16.70 (1.83)	16.79 (1.71)	-0.310 (203)	0.757
Communication	17.91 (2.83)	18.52 (2.82)	-1.262 (203)	0.208
Maturity	23.19 (2.58)	23.66 (2.76)	-1.015 (203)	0.311
Self-directed learning	7.93 (1.28)	8.15 (1.16)	-1.101 (203)	0.272
Grand total score	168.07 (14.84)	171.90 (14.15)	-1.563 (203)	0.120

Table 4: Comparison of mean score of professionalism by medical imaging students students of UiTM Puncak Alam according to semester of study (n=205)

Elements of Professionalism	Mean(SD)							t-statistics (df)	P-value
	Diploma 2nd Semester (n=30)	Diploma 4th Semester (n=26)	Diploma 6th Semester (n=30)	Degree 2nd Semester (n=30)	Degree 4th Semester (n=30)	Degree 6th Semester (n=28)	Degree 8th Semester (n=31)		
								0.839 (6)	0.541
								1.604 (6)	0.148
Honesty	23.37(3.22)	22.35(2.58)	22.80(1.45)	22.00(2.46)	22.40(2.90)	22.50(3.19)	22.97(22.63)	1.966 (6)	0.072
Accountability	18.57(3.08)	18.53(2.80)	19.90(1.56)	18.13(2.29)	18.50(2.83)	18.96(2.53)	19.10(1.97)	2.301 (6)	0.036
Confidentiality	14.33(2.28)	13.35(1.67)	14.73(1.62)	14.07(1.64)	15.00(2.03)	14.43(2.47)	14.55(2.08)	2.004 (6)	0.067
Respectful	24.87(2.73)	24.00(3.11)	25.87(2.33)	23.83(2.05)	24.80(2.44)	24.61(1.91)	24.55(1.89)	1.064 (6)	0.386
Responsibility	24.63(3.30)	22.81(3.14)	24.47(2.13)	23.73(2.24)	22.97(2.74)	23.89(2.08)	23.87(2.33)	1.330 (6)	0.245
Compassion	17.4(2.04)	16.50(2.25)	16.87(1.50)	16.47(1.50)	16.50(1.61)	16.79(1.71)	16.84(1.44)	2.044 (6)	0.062
Communication	17.73(3.28)	17.77(3.48)	19.37(2.01)	17.93(2.77)	18.60(2.92)	18.75(2.56)	18.52(2.53)	2.755 (6)	0.014
Maturity	24.03(3.09)	22.50(3.22)	24.17(1.62)	22.73(2.48)	23.30(2.84)	24.36(2.59)	23.74(2.72)	2.247 (6)	0.040
Self-directed learning	8.50(1.36)	7.58(1.30)	8.50(1.01)	7.70(0.99)	8.07(1.05)	8.25(1.24)	8.10(1.14)		
Grand total score	173.43(17.95)	165.38(18.76)	176.67(8.53)	166.60(11.74)	170.13(15.47)	172.54(12.95)	172.23(10.91)		

3.3 Levels of Professionalism

The findings from this study may be useful in delivering various main messages regarding to importance of growth of professionalism development among medical imaging students. The mean of overall professionalism scores among medical imaging student in UITM Puncak Alam was average. This can satisfy that the level of professionalism perspectives among medical imaging students was moderate. Based on the result, the majority of the participants were females. This confirms the trends in which healthcare's education institution is perceived to be 'naturally' as female activity and it is expected that such professions will be dominant by women [10, 11]. However, there was no significant difference on overall professionalism scores between male and female, which was similar results reported in previous studies [8, 12].

Besides that, female students scored higher in all professionalism elements compared to male students. Although there were no significant differences between genders of the mean scores of professionalism, respectful, accountability and responsibility were the three professionalism characteristic that scored much higher in female than male. These professionalism characteristics were labelled as 'feminine' attributes and could have impacted into higher development of professionalism among females, since there were also same results reported in such a similar background studies [8, 13]. However, the disproportion between genders in this study may influence the result.

Medical imaging students were given early exposure on professionalism development through formal education starting from fresh year of the programme. Hence, the professionalism scores between medical imaging students in their particular semester would reflect their 'think and act alike' throughout their learning. Based on the result, there was a significant difference among medical imaging students according to their semester of study in which diploma medical imaging students from fourth semester and degree medical imaging students from second semester scored low professionalism mean scores compared to other students in different semesters. Similarly, respectful and self-directed learning from the professionalism elements also resulted significant difference with respect to students from each semester. This could be attributed due to lack of real life experiential learning for opportunities to shape their professional behaviour [14]. This finding can be explained whereby the sense of professionalism will be improved by maturity and seniority [8].

Interestingly, diploma medical imaging students from second semester scored higher professionalism scores compared to degree medical imaging students from eighth semester which is the last semester of this programme. This finding also had similar contrast result from previous study [14]. In contrast, senior students should have learned and understood more about elements of professionalism [15]. In fact, they had their experience during their clinical attachment which exposed them to real-life situation that could have contributed towards build up their professional behaviours [15]. Therefore, they should have had the highest mean score of professionalism rather than others. However, similar studies reported that students' attitudes towards professionalism tended to decline during their years of training [8, 14]. There have been no significant reasons why senior students scored low professionalism scores than early fresh students but, unprofessionalism behaviours shown by senior radiographers with whom the students interact might impact their concept on professionalism [6]. Besides, such individuals may thwart professionalism-enhancing activities of students in college or can be at clinical placements as professional development is a longitudinal process [6]. Hence, role modelling is crucial in developing the awareness of appropriate actions in any contexts, as they presenting an important agent for students' understanding and interpreting on what professionalism looks like [6].

4. CONCLUSION

In conclusion, professionalism development among medical imaging students progressed through time and can be influenced by any factors such as gender and educational backgrounds. Hence, professional education and practice of professionalism attributes should be emphasized from time to time as it is extremely important, thus could facilitate the development of professionalism among medical imaging students. By effective professional education training and continues assessment, ethical, professional and responsible future radiographers can be developed for the societies.

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