

## RESEARCH ARTICLE

# Changes in attitudes towards professionalism among medical students during clinical clerkship

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## ABSTRACT

**Background:** Professionalism is a core competency of physicians, identified as one of the learning outcomes for the Doctor of Medicine program. In all the efforts geared towards supporting students develop high standards of professionalism through the 4-year course of medical education, perhaps the greatest gap is in assessment.

**Objectives:** The study aimed to determine how attitudes towards professionalism among medical students change during clinical clerkship, which attitudes change, and if these changes are associated with certain demographic factors and specific clinical rotations.

**Methodology:** This is a cohort study with a baseline and three consecutive measurements of attitudes towards professionalism among students in a medical school as they rotated in the different clinical departments for the first semester of AY 2018-2019. A 36-item questionnaire based on a validated instrument was used. Frequency counts, means, percentages, paired t-tests, analysis of variance, and chi-square were used to analyze the data.

**Results:** Overall, the attitudes towards professionalism among medical students were positive at baseline and did not significantly change through three consecutive clinical rotations. The scores were highest and most stable for altruism, accountability, and excellence. No association was found between any change in attitudes and certain demographic factors including age, gender, and pre-medical course, and specific clinical rotation.

**Conclusion:** No significant change in attitudes towards professionalism was found among fourth year medical students as they rotated through three consecutive clinical rotations. While many factors should be considered, this finding should prompt a comprehensive look at how clinical clerkship experiences actually educate for professionalism.

**Keywords:** attitudes, professionalism, clerkship, clinical rotation

## Introduction

Professionalism is a core competency of physicians. It is identified as a learning outcome in international and local statements of educational aims for the Doctor of Medicine program [1,2,3]. Mueller [4] expounded on the reasons for teaching and assessing professionalism, including patient and societal expectations, its association with improved clinical outcomes and likelihood of patients staying with physicians, and accreditation and professional organizations' requirements. Recently, there has been a renewed interest and focus on fostering professionalism in medical education

because of criticisms based on perceived and actual breaches in professionalism and ethics by some physicians [5].

Numerous authors and organizations have analyzed professionalism in medicine, defining the concept and its specific attributes, and describing the necessary commitments to sustain it, to fulfill what is called the medicine's social contract with society [5,6,7,8,9,10]. One of the most cited definitions is that of the American Board of Internal Medicine (ABIM) [8] which identifies the six elements of professionalism

that include altruism, accountability, excellence, duty, honor and integrity, and respect for others (Table 1). The six elements are broad and inclusive, and appropriate to all of the attitudinal qualities and skills desirable for graduates of medicine and practicing physicians, but distinct from the knowledge and technical aspects of medicine.

**Table 1.** *The elements of professionalism as defined by the ABIM [8].*

<b>Altruism</b>	The essence of professionalism, in which the best interest of the patients, not self-interest, is the rule.
<b>Accountability</b>	To patients—honoring the patient/physician relationship. To society—addressing the health needs of the public. To the profession—adhering to medicine’s ethical precepts.
<b>Excellence</b>	A commitment to life-long learning and a conscientious effort to exceed “ordinary expectations.”
<b>Duty</b>	Free acceptance of a commitment to service (e.g., accepting inconvenience to meet the needs of patients, enduring unavoidable risks in the care of patients, and advocating best care regardless of ability to pay). Seeking active in professional organizations and volunteering one’s skills and expertise for the welfare of the community.
<b>Honor and integrity</b>	Consistent regard for the highest standards of behavior and the refusal to violate one’s personal or professional codes. Recognition of the possible conflict of interest and avoidance of relationships that allow personal gain to supersede the best interests of the patients.
<b>Respect for others</b>	Including patients, families, other physicians, and health care professionals.

Professionalism can be developed and changed by education, a conclusion that arose from a review of attitude studies in medical education. The attitudes of students towards patients, illnesses, and conduct of care have been shown to be influenced by the curriculum, peers, role models, and the school environment [11,12].

Currently, there is a general agreement among medical educators that professionalism should be incorporated into the medical curriculum and learning environment. The objective is to provide multiple, stage-appropriate opportunities for learning and gaining experience in the necessary attributes of professionalism. A realistic strategy for starting a professionalism program is outlined by Stern and Papadakis [13] and consists of three steps: setting

expectations, providing experiences, and evaluating outcomes. In all these efforts, the greatest gap is in assessment. Unlike knowledge and skills which are rigorously evaluated by written, oral, and practical examinations during pre- and clinical years, the evaluation of attitudes remains limited in scope although certainly is evolving into a more systematic and comprehensive approach [6].

Locally, studies on student attitudes during medical education are scarce. The few studies available are usually focused on certain issues like cheating [14], community immersion and interpersonal skills [15], and character in relation to the medical profession [16]. One study compared the attitudes of medical students in the different year levels in terms of the institutions’ indicators towards the practice of medicine [17]. These indicators were dedication to learning, responsibility, humanism, compassion, social awareness, nationalism, respect for the rights of others, respect for privacy, and community orientation. This study however, being cross-sectional, did not really describe attitude change since different groups were compared after one measurement of attitude scores and the students were not followed over time.

## Methodology

The study followed the cohort study design with a baseline and three consecutive measurements of attitudes towards professionalism among medical students rotating in the different clinical departments. The survey questionnaire was based on the Penn State College of Medicine Questionnaire on Professionalism (PSQP), one of the first validated psychometric instruments designed to assess attitudes towards professionalism in medical students, residents, clinical faculty, and biomedical sciences faculty [18]. However, while the PSQP has been validated, the original questionnaire only requires the respondents to assess the extent to which their own definition of professionalism agrees with the 36 items in the instrument. The items are descriptions of behavior, not necessarily their own. Some items are also very general descriptions of behavior, for example, “assumes personal responsibility for decisions regarding patients,” “demonstrates empathy” and “adopts uniform and equitable standards for patient care,” which the students may not be able to interpret in the absence of more concrete examples. Since attitudes consist of cognitive, affective, and behavioral components [19], the questionnaire was modified with permission to include 36 items which are statements of beliefs, feelings, and actions, based on the definitions given by the ABIM and the PSQP but

relevant to what the clinical clerks experience in their day to day activities in the different rotations. For example, the item “assumes personal responsibility for decisions regarding patients” was converted into a belief statement, “When a patient is injured as a result of medical care, the primary attending physician should be the one to explain what happened to the patient.” The item “adopts uniform and equitable standards for patient care” was converted into a feeling statement, “I feel bad when I see some disparity on the quality of service given to private (paying) and charity (service) patients.” The item “demonstrates empathy” was converted into an action statement, “I take time to listen to patients expressing their fears concerning their illness or medical procedures.”

The questionnaire was presented to a 6-member expert panel which reviewed the quality of the statements using three types of descriptive analyses (item ambiguity,  $R_k < 3$ , median  $\geq 2.75$ , and percent agreement = 80%) and three quantitative methods (content validity index = 0.80, content validity ratio = 0.75, and content validity coefficient = 0.80) [20]. The questionnaire was administered to a similar group of students for reliability testing prior to actual use. To answer the questionnaire, the students should assess how much each statement reflect their own belief/action/feelings on a five-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = always or 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree).

The population consisted of 243 regular fourth students enrolled for clinical clerkship for the first semester of AY 2018-2019 in a Level 3 PAASCU-accredited medical school. The students were divided into six big groups (A to F), each consisting of four subgroups (1-4, 5-8, 9-12, 13-16, 17-20, and 21-24 respectively), with 10-11 students per subgroup. Each group rotated every two months in different clinical departments including Surgery, Internal Medicine (IM), Pediatrics, Obstetrics and Gynecology (OB-Gyne), Family and Community Medicine (FM/CM), and the Minors which consisted of two weeks rotation each in Orthopedics, Ophthalmology, Otorhinolaryngology, and Psychiatry, as shown in Table 2.

Data was analyzed using the SPSS version 25 software. Data were summarized using descriptive statistics. Means and standard deviations for age and scores of the students were computed. Frequency counts were used to summarize gender and premedical course. To determine if there were changes in attitudes towards professionalism among groups

of medical students after each rotation, ANOVA and paired t-tests were used. Paired t-tests were also used to determine which attitudes of professionalism changed after each rotation. Associations between the changes in attitudes towards professionalism and age, gender, premedical course and specific clinical rotations were determined using chi-square values.

The study protocol was submitted to the Institutional Ethics Committee (IEC), reviewed and approved prior to conduct.

## Results

### Demographics

A total of 243 regular students were enrolled for the first semester of AY 2018-2019 and all were invited to participate in the study. At the end of the study, 192 students or 79% completed the measurements and were included in the analysis. The mean age and standard deviation for the students was 23.7 +/-1.6 years. Seventy-three percent (140/192) of the students were females. Majority or ninety-six percent (185/192) had science courses as their pre-medical degree and only five of the students had non-science degrees.

### Changes in attitudes towards professionalism from baseline through three consecutive clinical rotations

Table 3 shows the mean scores of the students by group at baseline and at the end of three consecutive clinical rotations (R1, R2, and R3). The baseline mean scores of the different groups ranged from 4.17 to 4.25 and the differences in these scores were not statistically significant (p-value = 0.907).

Rotating through different clinical departments, the mean scores of the students analyzed by group also did not show statistically significant differences in scores, ranging from 4.12 to 4.30, when measured at three different time points. Out of 18 measurements made from baseline and through rotations 1,2, and 3 for the six groups, there was only one measurement with statistically significant *decrease* in score (Group E rotating from OB-Gynecology to Family and Community Medicine, from 4.30 to 4.13 with a p-value of 0.006) and two measurements with statistically significant *increase* in scores (Group B rotating from Minors to Internal Medicine, from 4.12 to 4.24 with a p-value of 0.043 and then Group E from baseline to Pediatrics, from 4.20 to 4.29 with a p-value of 0.045).

**Table 2.** Schedule of clinical clerkship rotations during the first semester.

GROUP		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER	
Group A	1	INTERNAL MEDICINE				SURGERY				PEDIATRICS			
	2												
	3												
	4												
Group B	5	ORT	OPH	ENT	PSY	INTERNAL MEDICINE				SURGERY			
	6	PSY	ORT	OPH	ENT								
	7	ENT	PSY	ORT	OPH								
	8	OPH	ENT	PSY	ORT								
Group C	9	FAMILY AND COMMUNITY MEDICINE			ELEC-TIVE	ORT	OPH	ENT	PSY	INTERNAL MEDICINE			
	10					PSY	ORT	OPH	ENT				
	11					ENT	PSY	ORT	OPH				
	12					OPH	ENT	PSY	ORT				
Group D	13	OBSTETRICS AND GYNECOLOGY				FAMILY AND COMMUNITY MEDICINE		ELEC-TIVE	ORT	OPH	ENT	PSY	
	14								PSY	ORT	OPH	ENT	
	15								ENT	PSY	ORT	OPH	
	16								OPH	ENT	PSY	ORT	
Group E	17	PEDIATRICS				OBSTETRICS AND GYNECOLOGY				FAMILY AND COMMUNITY MEDICINE		ELEC-TIVE	
	18												
	19												
	20												
Group F	21	SURGERY				PEDIATRICS				OBSTETRICS AND GYNECOLOGY			
	22												
	23												
	24												

*Changes in specific attitudes towards professionalism from baseline through three consecutive clinical rotations*

Figures 1 and 2 show the graphical representations of the mean scores of the different groups for each element of professionalism from baseline through three consecutive clinical rotations with the following ranges: 4.29 - 4.45 for altruism (highest scores), 4.12 - 4.45 for accountability, 4.09 – 4.38 for excellence, 4.02 – 4.27 for honor and integrity, 3.95 – 4.35 for duty, and 3.94 – 4.20 for respect for others (lowest score).

Analyzing the scores of the different groups for each element of professionalism from baseline to rotations 1 through 3, there were only a few (18 out of 108) measurements that showed significant differences in scores between measurements, whether an increase or a decrease. The changes did not show a particular pattern, however, in terms of specific elements of professionalism, groups involved, and clinical rotations.

The attitudes of professionalism for which the groups showed stability in scores from baseline and throughout the semester were altruism, accountability, and excellence. The lowest scores were on duty and respect for others.

*Association between changes in attitudes and age, gender, and pre-medical course*

The study showed that the mean scores of female students were consistently higher than the male respondents and the difference was statistically significant at baseline, and at the end of rotations 2 and 3 as shown in Table 4. Chi-square tests, however, showed that there was no significant association between gender and the changes (an increase or a decrease) in their professionalism scores (p-value = 0.810) from baseline to end of rotation 3.

Similarly, age (p=0.255) and pre-medical course (p=0.188) were not significantly associated with changes in attitudes towards professionalism.

**Table 3.** Mean scores and standard deviations of respondents by group at baseline and at the end of 3 consecutive clinical rotations (R1, R2, R3).

Group	n	Mean Scores (Standard deviations) at baseline and end of rotations				Sig* (paired t-test)
		Baseline*	R1	R2	R3	p-value
A	33	4.23 (0.247)	Internal Med 4.24 (0.209)	Surgery 4.22 (0.245)	Pediatrics 4.20 (0.261)	0.890 0.733 0.522
B	31	4.25 (0.224)	Minors 4.12 (0.355)	Internal Med 4.24 (0.237)	Surgery 4.16 (0.219)	0.052 <b>0.043</b> 0.084
C	33	4.23 (0.262)	FM/CM 4.20 (0.190)	Minors 4.17 (0.261)	Internal Med 4.18 (0.218)	0.536 0.586 0.791
D	32	4.21 (0.247)	OB-Gyne 4.17 (0.282)	FM/CM 4.17 (0.285)	Minors 4.17 (0.209)	0.256 0.973 0.977
E	29	4.20 (0.260)	Pediatrics 4.29 (0.325)	OB-Gyne 4.30 (0.241)	FM/CM 4.13 (0.284)	<b>0.045</b> 0.737 <b>0.006</b>
F	34	4.17 (0.341)	Surgery 4.20 (0.309)	Pediatrics 4.24 (0.304)	OB-Gyne 4.20 (0.265)	0.608 0.146 0.210

\*ANOVA for baseline measurements: p-value = 0.907

\*\*Sig. — p-values for paired t-test

#### Association between changes in attitudes towards professionalism and specific clinical rotations

Table 5 shows the mean scores from baseline to the end of rotation 3 among the groups who shared the same clinical rotation during the study period.

Analysis using paired t-tests showed that among the groups who shared the same clinical rotations during the study period, there was a statistically significant decrease in the mean scores from baseline to end of rotation 3 among those who rotated in the minor clinical departments which included Ophthalmology, Otorhinolaryngology, Orthopedics, and Psychiatry ( $p < 0.001$ ). Chi-square tests, however, showed that there was no significant association between the group assignments and the changes (an increase or a decrease) in their professionalism scores ( $p$ -value=0.903).

## Discussion

Clinical clerkship is the fourth and final year of the basic medical education program. The intent of clinical clerkship is to train medical students in the fundamentals of clinical examination, evaluation, and provision of healthcare, and

expose them to different specialties for further study. During clinical clerkship, the medical students interact with real patients under the supervision of physicians including consultants and residents.

Professionalism, being one of the program outcomes identified by CHED for the Doctor of Medicine program, has been integrated into the medical school's curriculum which continue to evolve in a standardized, comprehensive manner. While it is ideal to assess professionalism in students throughout their 4-year medical program, assessment during clinical clerkship is a good starting point to evaluate the overall impact of the school's current efforts at educating for professionalism.

The findings of positive baseline attitudes and their general stability throughout the clinical rotations during the first semester is a reflection of the impact of the school's current educational processes and environment on the development of the students' professional identity. Currently, each department has structured teaching and assessment plans that cover not just knowledge and skills but the development of attitudes. The implementation of the mentoring program in the last three years provided a greater

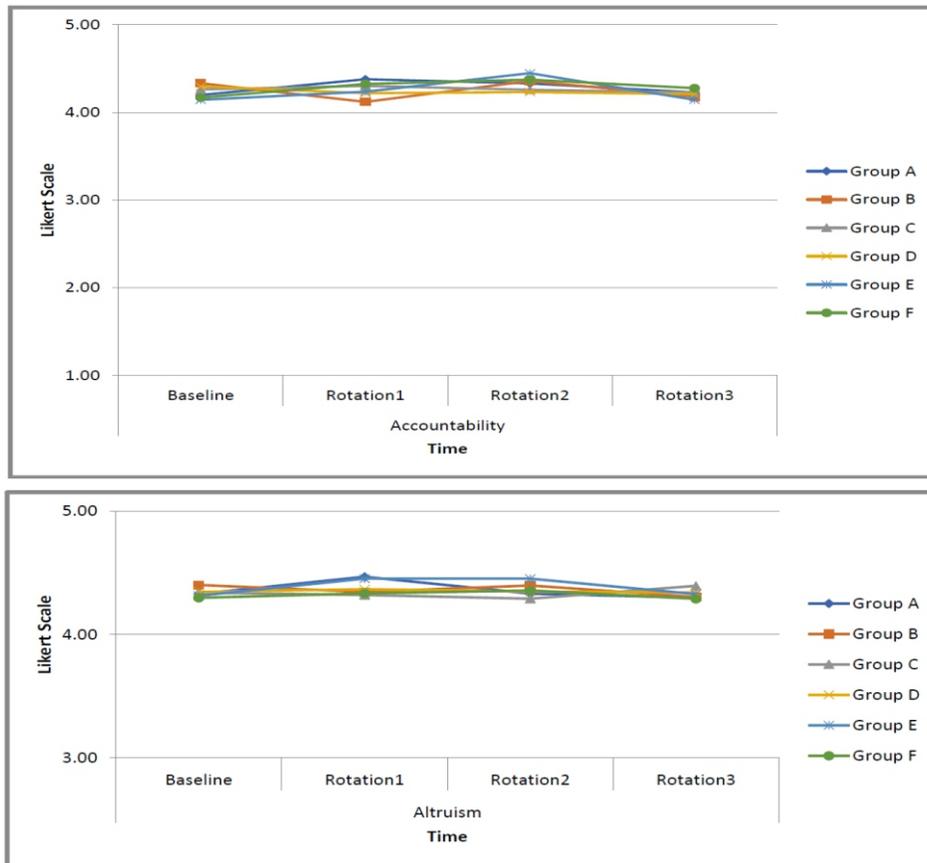


Figure 1. Mean scores of respondents by group, at baseline and at the end of rotation 1-3, and by elements of professionalism (accountability and altruism).

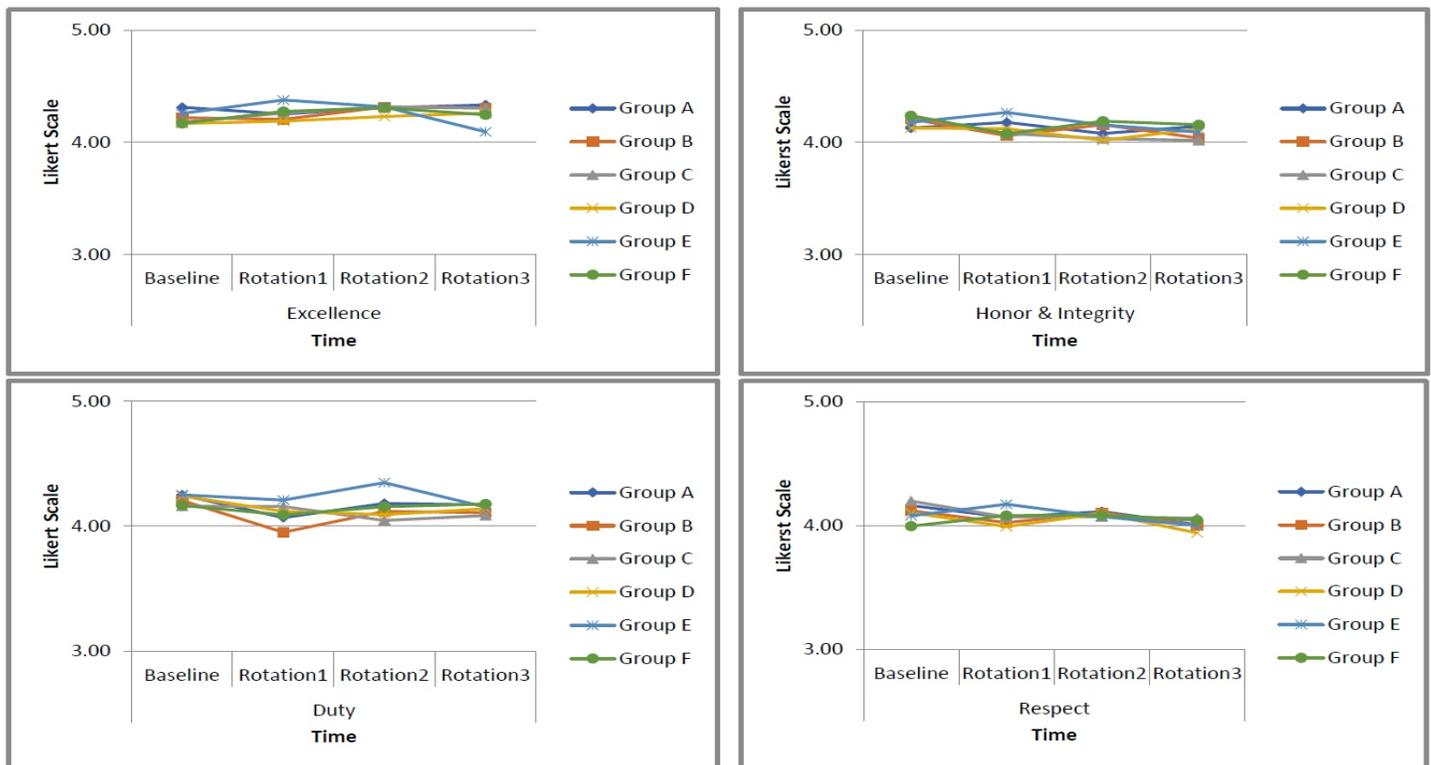


Figure 2. Mean scores of respondents by group, at baseline and at the end of rotation 1-3, and by elements of professionalism (excellence, honor and integrity, duty, respect).

**Table 4.** Mean scores of respondents according to gender

Gender	N	Mean	Std. Deviation	T-test p-value
Baseline F	140	4.24	0.27	0.018
M	52	4.14	0.24	
R1 F	140	4.22	0.29	0.179
M	52	4.15	0.26	
R2 F	140	4.25	0.26	0.035
M	52	4.16	0.27	
R3 F	140	4.20	0.23	0.038
M	52	4.11	0.26	

**Table 5.** Mean scores at end of R3 and baseline among groups which shared the same clinical rotation during the study period.

Groups and Shared Clinical Relations	Mean, R3 and Baseline	N	Std. Deviation	Paired t-test p-value
B,C,D Minors	4.30 4.15	96 96	0.34 0.28	<b>&lt;0.001</b>
C,D,E FM/CM	4.22 4.17	94 94	0.25 0.25	0.114
D,E,F OB/Gyne	4.20 4.22	95 95	0.29 0.27	0.361
A,E,F Pediatrics	4.20 4.24	96 96	0.29 0.30	0.133
A,B,F Surgery	4.22 4.19	98 98	0.28 0.26	0.356
A,B,C Internal Medicine	4.23 4.22	97 97	0.24 0.22	0.482

venue not just for role modeling but also for the discussion of the students' portfolios of learning and reflections. The Bioethics sessions that discussed ethical issues and dilemmas concerning patients, physicians, and even the community were very good resources for the clinical clerks. Lastly, the recent adjustment of the students' duty schedules that allowed them to be relieved from actual patient care after a 24-hour duty has been applauded.

However, it must be noted that while the mean scores of the students generally remained stable over time, they also did not improve significantly as a result of clinical clerkship rotations. For all the groups, in any rotation, for any element of professionalism, there was no score that reached 4.5 or greater which is closer to the "strongly agree" and "always" options in the Likert scale and would reflect more favorable attitudes towards professionalism. This finding should prompt a closer look at how the clinical clerkship experiences

such as patient encounters, problem-solving, opportunities for interprofessional collaboration, consultant feedback, and other teaching-learning activities actually educate for professionalism. As these processes were meant to enhance the students' professional development, there seems to be a need to evaluate why they seem to stagnate, especially in certain elements like duty and respect for others. Fortunately, the study did not show ethical erosion, a well-documented phenomenon in earlier studies that describe how ethical and moral reasoning decline when students enter their clinical years of training as a result of the traditional hierarchical environment, ethical dilemmas, and the curriculum that focused more on the acquisition of knowledge and skills while overlooking attitudes development [21,22,23].

Looking at the mean scores for all the elements, for all the groups, at baseline and through three consecutive rotations, all approximated 4.0 and above. Again, while these values may indicate positive attitudes, there seems to be a need to clarify with the students how one attitude necessarily affects the others. In the study, the students scored highest on the element altruism but scored low on duty. One would expect that if someone were altruistic, defined as "considering the best interest of the patients," one would also be dutiful defined as "committing to the needs of the patients even if inconvenient". The importance of respect for others should be emphasized more as the students also scored lowest in this element.

Among the demographic factors analyzed, only gender showed some significant findings. The consistently higher scores among female students is consistent with reports from several studies showing that the female gender is associated with more favorable, patient-centered attitudes. The suggested explanation for this was the early socialization among females [23,24,25]. However, the changes in scores (an increase or a decrease) was not significantly associated with gender ( $p=0.810$ ).

The finding of statistically significant decrease in the mean scores from baseline to end of rotation is 3 among the groups who rotated in the minor clinical departments which included Ophthalmology, Otorhinolaryngology, Orthopedics, and Psychiatry would be difficult to account for and needs further analysis. Perhaps, the very short rotations of two weeks each, with different objectives, schedules, training programs, and trainers, are factors to consider. The minor rotations differed significantly with the major rotations such as Internal Medicine or Surgery, for example, with two months duration, where the students were more likely to adjust to the training

program and trainers, giving them more opportunity for internalization and expression of professionalism. Further analysis however, showed that there was no significant association between the changes (an increase or a decrease) in scores and the respondents' group ( $p=0.903$ ) which determine their clinical rotations and sequence.

This study recognizes several limitations. First, attitudes develop slowly over time [26] and two months rotation in a clinical department may not produce lasting changes and will be difficult to attribute to a single rotation. For example, the scores of the groups of students at the end of the third rotation may in fact be the cumulative effect of their experiences in the three rotations. Related to this, the sequence of rotations was different for each group of students, exposing them to variable training environment and culture unique to each clinical department. At the end of the study, the different groups of students have completed only three out of the six rotations for clinical clerkship. Still, some studies were able to demonstrate changes in attitudes towards professionalism in medical students during and after short courses or rotations such as Anatomy [27] and clerkships in Medicine and Surgery [28]. Lastly, the assessment is limited to the students of the particular medical school only.

It is in this light that the following recommendations are given. First, that a similar self-assessment questionnaire be developed with the same blueprint for the first, second, and third year students to track the development of their attitudes throughout the four-year medical course. The content should be unique and related to their everyday experiences like tardiness, cheating, and contributing to group projects. Indeed the creation of the questionnaire is one of the significant contributions of the study. The results of these self-assessments, coupled with other methods of assessment should be summarized periodically and included in the mentoring program agenda. Second, that the questionnaire used in the study be administered regularly for clinical clerks as part of their multi-source assessment for professionalism. Lastly, that the current instructional designs for all the clinical rotations be reviewed to look at how professionalism is taught and assessed, including the materials given to clinical clerks especially patient encounters, feedback, and multi-source assessment.

## Conclusion

The attitudes towards professionalism among fourth year medical students enrolled in a Level 3 PAASCU-

accredited medical school for the first semester of AY 2018-2019 were positive at baseline and remained stable through three consecutive clinical rotations. A closer look at how the clinical clerkship experiences educate for professionalism is recommended to improve student attitudes.

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