

ORIGINAL ARTICLE

PRE CLINIC GRADE AND CLINIC PERIODS EFFECT ON PROGRESS TEST OF UNISMA MEDICAL PROFESSION STUDENTS

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ABSTRACT

Introduction. Pre clinic grade point is often seen as predictor of good performance in professional education whose short term goal is to pass national examination which command progress test to evaluate the preparation. Purpose. To know the effect of pre clinic grade point and clinical study periods in progress test result of medical profession students.

Methods. 135 students of medical profession programme completed computer based progress test of 200 national standardized questions in 200 minutes using siPENA software. Progress test result then analysed based on how long they have been studied and their pre clinic grade point using ANOVA – Tukey HSD and Pearson correlation in SPSS for Windows ver 19

Results. Although students with pre clinic grade 2,50-2,74 have lower progress test result, but it's not statistically significant ($p > 0,05$). The same happen in clinic study periods with the longer the students in their clinical rotation, the better their result ($p > 0,05$). The trends which showing better result in higher pre clinic grade point and time they spend in clinical rotation agrees with previous studies.

Conclusion. Pre clinic grade point and clinic study periods has little to no effect on progress test result of medical profession students in UNISMA.

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INTRODUCTION

Faculty of Medicine aims to educate future doctors. In Indonesia, this education consist of two phases, which are medical bachelor programme for pre clinic study and medical profession programme for clinical training. Exit exam for medical education in Indonesia is national competency examination (*Uji Kompetensi Mahasiswa Program studi Profesi Dokter / UKMPPD*) which is taken in the end of medical profession programme in the form of computer based test and Objective Structured Clinical Examination (OSCE). In medical bachelor programme, studies are designed in problem based learning, which are arranged based on system organ, while in medical profession programme which is hospital based,

the training is arranged in departemental clinical rotation. Pre clinic study problem based learning strategies including tutorial, lecture, practicum in laboratory, and clinical skill training. Assessment in pre clinic period such as written assignment, multiple choice question from tutorial and lecture material, practicum response test, and OSCE comprised score of block courses. Combined score of block courses and general basic courses such as religion, citizenship and enterpreneurship from all semesters formed cummulative grade point (*indeks prestasi kumulatif/IPK*). Only students with sufficient pre clinic grade could enter medical profession programme.

Clinical training strategies including apprenticeship in day clinic, emergency room,

ward, and operation room, night shift, morning reports, bed side teaching, clinical tutorial, journal reading, literature review and case presentation. Assessment as day to day performance in managing the case and the patients observed by clinician as clinical trainer, and formal assessment in the end of rotation in the form of written assessment, skill test and case test. Progress test is an assignment which consist of all subjects, in level of understanding and competencies expected for graduate medical doctor. This test is taken through out medical education to evaluate the growth of knowledge in medical student.¹ Prior academic performance was said to be the best predictor of subsequent academic performance,² thus medical profession students with good pre clinic grade point supposed to have good performance in academic assessment in their clinical training periods. Progress test for medical profession students in the form of computer based test could be seen as one academic assessment in clinical training periods that supposed to show that correlation.¹ Further, performance in progress test taken in the clinical training periods supposed to predict their likelihood to pass national examination computer based test.

Clinical training in teaching hospital aim to transfer basic clinical skills and giving students the foundation for clinical practice. The further their study in clinical rotation, the deeper and more practical their understanding should be. In this deduction, it is expected that the longer the students went into their clinical rotation, the better their progress test result. This study which evaluate the effect of pre clinic grade point and clinic rotation periods to progress test result is aimed to verify those presumption.

METHODS

In the beginning of semester, all medical profession student was gathered in Faculty of Medicine UNISMA to undergo progress test. As one way to prepare the student for computer based test national examination, this progress test was also using computer based test. The test

was designed by Medical Education Unit Faculty of Medicine UNISMA. The questions were comprised from regional national examination try outs question distributed by Association of Indonesian Medical Faculty region V.

The process of developing the question set was as follow. First, every medical faculty must have one item bank administrator (IBA). IBA from all medical faculty then were trained in how to make a good test question and how to organize it. Next, in their own medical faculty, IBA trained lecturers and clinician to make test questions based on their expertise and specialities. Regional administrator then assigns IBA in each medical faculty to collect questions. The assignment is divided according to organ system and study discipline, each medical faculty assigned to different organ system or study discipline. Then Association of Indonesian Medical Faculty region V conducted a review meeting attended by expert and specialist representative from all medical faculty. Regional administrator organised the preparation of the review meeting so that specialists / experts from all fields are present. In review meeting, questions were examined by experts in matching fields in their congruence with the topic / field requested, vignette quality, options correctness, and other standards as guided by National Committee of National Examination. Regional administrator will collect corrected and accepted questions, then submit it to National Committee of National Examination according their request. Question that were exempted then distributed to all medical faculty to be used as try out test questions. Faculty of Medicine UNISMA also use this set of questions for progress test. Therefore this progress test questions quality is as closely as possible with national examination.

Students of medical profession programme Faculty of Medicine UNISMA were 135 while the capacity of the computer laboratorium was only 70 personal computer, so the test was conducted in three separated sessions. In order to prevent cheating and guessing, Medical Education Unit prepare three sets of test

questions. The software used in administrating and delivering the test was siPENA software developed by National Committee of National Examination and distributed by Association of Indonesian Medical Faculty region V. Item analysis provided by the software shows that all three sets of test have similar reliability, difficulty and discrimination index.

The mark was calculated based on total number of correct answers. There is no penalty for wrong answers. These marks then was analyzed on its association with the students grade (Indeks Prestasi Kumulatif / IPK) when graduate from pre clinic programme and how long the students has been in their clinical rotations. The students grades were grouped into 2,50 – 2,74 , 2,75 – 2,99, and more than 3,00 while the periods of clinical rotations were grouped into 6 months, 12 months, 18 months and 24 months.

The requirement for entrance to medical profession programme Faculty of Medicine UNISMA are graduated from medical bachelor programme Faculty of Medicine UNISMA with grade point of minimal 2,50 in 14 semesters or less. So the lowest group was set in 2,50, while because about 50-60% bachelor graduate have grade point of 3,00 or more so the highest group were set in 3,00.

Medical profession programme Faculty of Medicine UNISMA consist of 40 credit semester, which is taken in 109 weeks. Internal

medicine, Surgery, OBGYN, Pediatric and Public Health are for ten weeks; ENT, Ophthalmology, Neurology, Radiology, Psychiatry, Physiatriy, Forensic and Pharmacy are for five weeks and Anesthesiology and Dentistry for three weeks. First set of clinical rotation usually consist of Internal medicine, Surgery, Neurology or Pharmacy. The group of 6 months comes from this set of clinical rotation. After finishing those laboratories, come OBGYN, Paediatric, ENT and Ophthalmology. The group of 12 months come from this stage. The rest laboratories are randomly assigned with Physiatriy and Public Health are in the very end of rotation. The group of 18 and 24 months come from this remaining rotation.

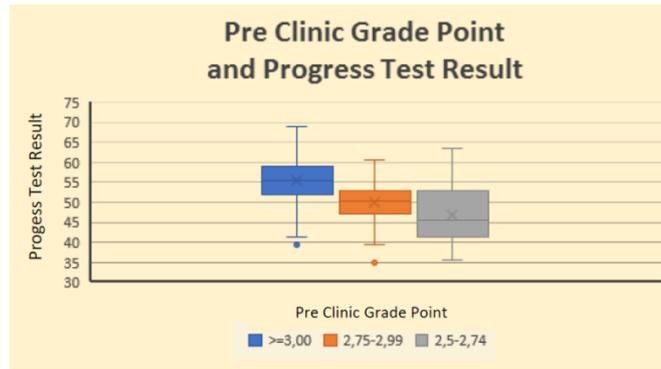
The data then underwent analyze of distribution and homogeneity. After the data was declared of normal distribution and homogen, it was assigned to ANOVA and continued with Tukey HSD and Pearson correlation to evaluate significant difference and association between progress test result with pre clinic grade point and periods of clinical rotation.

RESULTS

From 135 medical profession students, only one person passed the cut off mark of national examination computer based test which is 66 or 68 mark. The overall mean score is 52,19. Mean score according to pre clinic grade point is shown in Table 1 and Graphic 1.

Table 1. Pre Clinic Grade Point and Progress Test Result

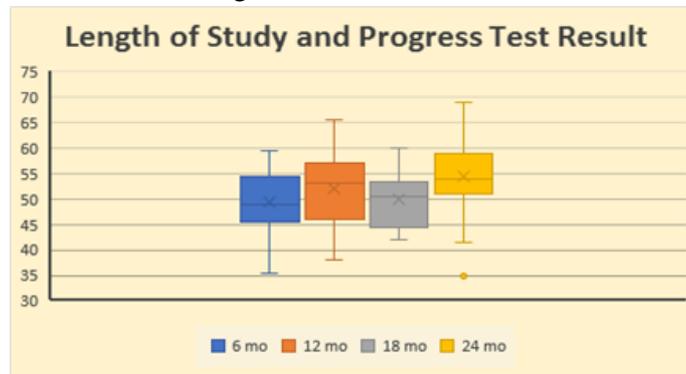
Pre Clinic Grade Point	N	Mean Progress Test Score
>=3,00	66	55,33 ± 5,71
2,75-2,99	48	50,16 ± 4,88
2,5-2,74	21	46,98 ± 7,85



Graphic 1. Pre Clinic Grade Point and Progress Test Result

Statistic analysis using ANOVA followed by Tukey HSD showed no significant difference of progress test results from each group of pre clinic grade point with p value in range from 0,8 to 0,1. Pearson correlation even showed negative

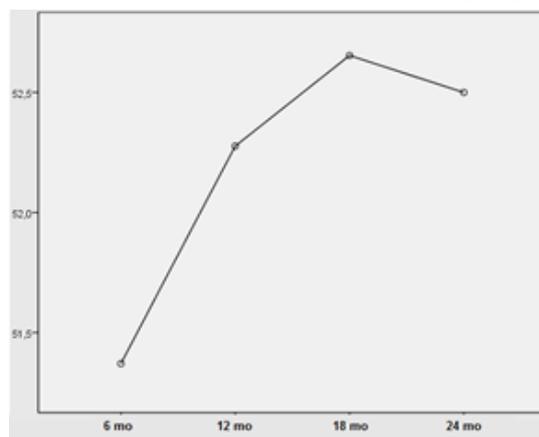
correlation with $r = -0,007$ which means the better the pre clinic grade point the worse progress test result, though in very low significance of $p = 0,934$.



Graphic 2. Clinical Study Periods (as length of study) and Progress Test Result

Graphic 2 and Graphic 3 showed progress test result according to length of clinical study periods / clinical rotation. There are 31 students in 6 months group, with mean score $49,41 \pm 6,1$;

38 students in 12 months group, with mean score $52,06 \pm 7,1$; 13 students in 18 months group, with mean score $49,88 \pm 5,71$ and 53 students in 24 months group with mean score $54,47 \pm 6,09$.



Graphic 3. Clinical Study Periods and Progress Test Result

Though the graphic of mean score showing trend of better result in longer study period, statistic analysis using ANOVA followed by Tukey HSD showed no significant difference with p value in range from 0,8 to 1,0 while Pearson correlation showed positive correlation with $r=0,059$ with low significancy in $p=0,495$.

DISCUSSION

This study found that there are no significant difference in progress test results from different pre clinic grade point and that there is no correlation between pre clinic grade point and progress test results. This finding contradict other studies that found that prior academic performance is the best predictor of subsequent academic performance.²⁻⁵

This contradiction could means that there are other factors influencing academic performance other than previous academic performance. There are non-cognitive factors like personality and learning styles, and demographic factors such as sex and ethnicity that were not evaluated in this study. Study by Shawwa *et al*⁶ in Saudi Arabia found trends that students with better academic performance reported that they enjoy studying, prefer to study alone in silence and with no interruptions, and studied for longer hours during the weekend. They also tens to have particular style in studying like highlighting and skimming or reading before attempting to memorize the material, even to favor a certain posture or body position while studying. This is supported by study in Malaysia⁷ which found that favoring particular place for reading have significant effects on the students' performance, although this study also found that demographic factors like gender or marital status do not have significant effect in academic performance. In order to increase the likelihood of medical profession students to pass national examination, futher research in the other factors is important.

This study also found no significant difference between students who just enter the clinical rotation with students who have been in

the rotation for quite long time or almost finished it. This result is in concord with McManus *et al*^{8,9} that found that success in the final examination was not related to a student's clinical experiences. Again, that study stated that learning styles is important.

Learning in hospital environment is different from pre clinic period. In pre clinic the lessons is structured with fixed schedule while in hospital its mostly of self-directed learning. Students need some adjustment to this change so they can be an effective hospital learners.¹⁰ This study result give an impression that the students lack of ability in learning from clinical training, therefore, training of learning to learn in a hospital is needed. Study by Carr *et al*⁴ stated that junior doctors sometimes feel not sufficiently prepared in time management, aspects of prescribing and complex practical procedures.

McManus *et al*^{8,9} found that strategic or deep learning style is related with success in examination. Deep learning process include identify general principles, integrate material across courses, and relate ideas to evidence. This learning style is motivated by interest in subject, vocational relevance and personal understanding. Strategic style is motivated to achieve high grades, to compete with other and to be succesful so in process this style use techniques that achieve highest grades resulting in patchy and variable understanding. To equip students with 'survival skills' as self-directed hospital learners, understanding and training of this two kinds of learning style is important so they can graduate from syllabus-boundness surface learning style they might be develop in pre clinic.

CONCLUSION

Taken this study result into consideration, Faculty of Medicine UNISMA needs to intensify national examination preparation programme for students who have finished all their clinical rotation. Before entering this program students need to be evaluated in factors contributing to

their academic performance so the program organizer and peer mentors could develop specific approach to address problems and increase the effectiveness of the program. Furthermore, this result should be communicated to clinician in teaching hospitals and there should be a coordinated effort in implementing quest of national examination to clinical training.

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