The correlation between grade point average with UKMPPD’s result in faculty medicine of university of Palangka Raya

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Abstract. The Grade Point Average (GPA) as a measure of student performance in implementing the curriculum is expected to be correlated with the UKMPPD results to produce competent doctors with national standards. However, this is not in line with some who do not pass the UKMPPD at the Faculty of Medicine, University of Palangka Raya. This problem raises the question, can a medical student's GPA ensure a fresh graduate doctor's competency to pass UKMPPD? The research design was descriptive-analytic, with a cross-sectional design consisting of 132 students participating in UKMPPD as the first participants from May 2016 to November 2019. The data obtained were the results of preclinical and clinical GPA and UKMPPD. Data analysis using Pearson correlation test and Mann Whitney test. Statistical analysis showed that there was a significant relationship (p <0.001) between the preclinical GPA and the results of CBT (r = 0.642), OSCE (r = 0.329), and UKMPPD. Clinic GPA showed significant correlation (p <0.001) with CBT (r = 0.429), and UKMPD results (p = 0.001), but had no significant correlation (p = 0.167) with OSCE. These results indicate that the GPA of Preclin and Clinic scores can be used as an indicator of learning outcomes to determine cognitive test results.

1. Introduction

The implementation of medical education aims to produce doctors with the various abilities needed to strengthen the National Health System within the framework of the National Social Security System. The government implements a quality assurance system for higher education in the health sector by the mandate of Law on Higher Education, namely the implementation of a national competency test [1]. In 2013, Law No. 20 of 2013 concerning Medical Education states that UKMPPD is carried out nationally before taking an oath as a doctor. Students who pass the competency test in question obtain a diploma / clinic certificate issued by the University and a certificate of competence published by the Clinic Organization, namely the Indonesian Medical College (KDI) / Indonesian Primary Medical College (KDPI) [2,3].

The Grade Point Average (GPA) can be used as an indicator to measure the success of the teaching and learning process of student learning achievement. FM student GPA consists of two stages, namely, Pre clinic GPA and Clinic 4GPA. The GPA value resulting from the learning process during education should be directly proportional to the UKMPPD results consisting of a computer-based test (CBT) and an objective structured clinical examination (OSCE). However, this is not in line with some who do not pass the UKMPPD at the Faculty of Medicine, University of Palangka Raya.
There are still students who do not pass the UKMPPD, a problem in the UPR Medical Faculty, and several medical faculties in Indonesia. Several studies tried to correlate the GPA and the UKMPPD result, and various results correlation existed. Manuputty et al. found preclinical year GPA was significantly correlated with the UKDI score, and the result was consistent with four medical schools public universities [4]. Irma Suswati and Rahayu from university Muhammadiah Malang also found a correlation of GPA and passing the UKMPPD [5]. Febrianti et al. also found a large correlation of preclinical GPA and UKMPPD results on the University of Sam Ratulangi [6]. Pitra and Resti from the university of Baiturrahmah found a weak negative correlation GPA with passing UKMPPD [7]. Zahn et al. also found a correlation between GPA and the national board outcome (United states medical licensing examination-USMLE) [8].

Based on the above problems, the purpose of this study was to determine whether the preclinical and clinic GPA was one of the benchmarks for the success of a student in his studies has a relationship with the CBT, OSCE, and UKMPPD results. The results of this study provide input to institutions to improve the learning process.

2. Methods
This type of research is descriptive-analytic with a cross-sectional design. The sampling technique in this study is total sampling. In sampling, the characteristics are FMUPR students who take UKMPPD from May 2016 to November 2019. Preclinical and clinic average scores are independent variables, and CBT scores, OSCE scores, and UKMPPD results are the dependent variables found in this study. Data were analyzed using Pearson and Mann Whitney correlation tests using SPSS statistics.

3. Results
The number of FMUPR students who have completed education at both preclinical and clinic levels and who have taken UKMPPD from May 2016 to November 2019 and have fulfilled the inclusion and exclusion criteria is 132 people.

Table 1. Distribution of UKMPPD results from FMUPR students in the UKMPPD May 2016 to November 2019.

| UKMPPD Result | GPA-AS Median (min - max) | p-value | GPA-PS Median (min - max) | p-value |
|---------------|---------------------------|---------|---------------------------|---------|
| Pass (n=120) (90.9%) | 3.10 (2.80 - 3.62) | < 0.001 | 3.28 (3.08 - 3.68) | 0.001 |
| Not pass (n=12) (9.1%) | 2.87 (2.81 - 3.13) | | 3.22 (3.08 - 3.26) | |

Based on the Mann Whitney test in table 1, the statistical test results obtained showed that there were significant differences in the preclinical GPA of students who passed the student who did not pass (p <0.001), with an average ranking of students who passed, was 71.43 and the average ranking of students who did not pass was 17.25, which shows that there is a meaningful comparison between preclinical GPA and UKMPPD results. Statistical test results showed that there were significant differences in the scores for the clinic GPA of students who passed and students who did not pass (p = 0.001), with an average ranking of students who graduated was 69.86, and the average ranking of students who did not pass was 32.96, which showed that there was a significant relationship between the GPA UKMPPD professions and results.

Table 2. Pearson Correlation Test Results from Preclinical GPA score with CBT and OSCE scores.

| CBT Score 75.47 (65 – 88.50) | OSCE Score 34.32 (29 – 42.6) |
|-----------------------------|--------------------------------|
| Preclinical GPA Score 3.13 (2.80 – 3.62) | r = 0.642 | r = 0.329 |
| p < 0.001 | p < 0.001 | |
| n = 132 | n = 132 |
Preclinic GPA correlation test with CBT score shows a strong relationship ($r = 0.642$) and has a positive pattern meaning that the higher the preclinic GPA, the higher the CBT value. Statistical test results obtained a significant relationship between undergraduate GPA and CBT scores ($p < 0.001$).

Preclinic GPA correlation test with OSCE scores showed a weak correlation ($r = 0.329$) and positive patterned mean that the higher the preclinic GPA, the higher the OSCE value. Statistical test results obtained a significant relationship between preclinic GPA and OSCE scores ($p < 0.001$) (Table 2).

### Table 3. Pearson Correlation Test Results from Clinic GPA score with CBT and OSCE scores.

| Clinic GPA Score | CBT Score | OSCE Score |
|------------------|-----------|------------|
| 3.29 (3.08 – 3.68) | 75.47 (65 – 88.50) | 34.32 (29 – 42.6) |

Table 3 above shows the results of the clinic GPA correlation test with the CBT score shows a moderate relationship ($r = 0.429$) and has a positive pattern meaning that the higher the clinic GPA, the higher the CBT value. Statistical test results obtained a significant relationship between undergraduate GPA and CBT scores ($p < 0.001$). Clinic GPA correlation test with OSCE scores showed a very weak correlation ($r = 0.121$), but statistical test results obtained no significant relationship between clinic GPA and OSCE scores ($p = 0.167$).

### 4. Discussion

Table 1 shows the Mann Whitney test that there is a significant difference with $p <0.001$ so that it can conclude that there is a relationship between preclinic GPA and UKMPPD results. Previous research also showed that there was a significant relationship between preclinic GPA and UKMPPD graduation [9]. Table 1 also shows that there is a significant difference with $p = 0.001$, so it can conclude that there is a relationship between clinic GPA and UKMPPD results. Previous research also showed that there was a significant relationship between clinic GPA and UKMPPD graduation [6]. So preclinic and clinic GPA can use as predictors of UKMPPD students' graduation.

Table 2 shows the correlation analysis between preclinic GPA and CBT. It obtained a significant relationship with a strong degree of closeness ($r = 0.642$). The results of this study are the same as previous studies, which show a correlation between variables with strong correlation strengths [7]. The correlation is strong because the assessment at the preclinic stage is similar to CBT, which tends to center on the cognitive domain.

The preclinic GPA correlation test with OSCE values in Table 2 also showed a significant relationship with the strength of a weak relationship ($r = 0.329$). The results of this study are also by previous studies, which also gained meaningful relationships but with the power of strong relationships [6]. The difference in the strength of this relationship can cause variations in the number of subjects used in the study. The previous research involved 539 research subjects. During this study, only 132 participants. It is also due to the OSCE examination being assessed more emphasis on clinical skills, although in OSCE there is also a domain of knowledge in cognitive aspects [9].

The analysis of the relationship of clinic GPA with CBT values in Table 3 obtained a significant relationship with moderate strength ($r = 0.429$). Previous research also showed a significant correlation in the analysis of clinic GPA correlations and CBT scores [6]. Our study found significant is the positive powerful correlation between preclinical GPA with CBT UKMPPD score, compared to the correlation between clinical GPA with CBT score, has a moderate correlation. This means that the greater the value of the GPA, Preclinical, and clinical, the greater the CBT UKMPPD value. This finding concurs with the existing literature that acknowledges a strong correlation between undergraduate GPA scores and the student's whole performance in medical school [10]. Our findings confirmed a study in Indonesia by
Manuputty et al. that the preclinical GPA scores were better CBT UKMPPD scores predictor than clinical GPA [4]. However, compared with the strength of the preclinic GPA relationship and the value of CBT, this strength is weaker. This is because even though the clinic stage places more emphasis on clinical skills, students are still required to understand the theoretical aspects of each clinical skill acquired during the education period.

The correlation test of clinic GPA with OSCE score in Table 3 found no significant relationship. This study's results differ from previous studies, which obtained a significant correlation between preclinic achievement during clinical clerks and OSCE graduation with moderate correlation strengths [6]. This could be due to the clinic level of clinical skills being the main priority that a student needs to achieve by the objectives The primary implementation of OSCE is to test clinical competency objectively and structurally.

All the results of the correlation test analysis with Pearson between variables found a positive correlation direction, which indicates that the greater the preclinic and clinic GPA, the higher the value of CBT and OSCE. The two GPA values prove still relevant as indicators of learning outcomes to determine the UKMPPD. The Pearson test results show a more significant correlation of preclinic GPA against CBT scores than the clinic GPA. Preclinic GPA is a better predictor than a Clinic GPA in determining CBT graduation, so the learning process at the preclinic stage must be further improved and more attention, especially to knowledge, psychomotor, and attitude [5].

Based on the results of this study, it was obtained the compatibility with the hypothesis. Namely, there is a relationship between preclinic GPA and the value of CBT, OSCE, and UKMPPD. The results of this study are consistent with research conducted by Febrianti et al., which proves that there is a correlation between preclinic GPA scores with CBT, OSCE, and UKMPPD graduation results [6].

The findings of this study are several limitations. First, the data consisted of academic records from only one faculty; thus, generalizing results at all public universities is a limited, moreover private university. Second, the study design is subject to information bias because investigators cannot control primary data collection accuracy and reliability responsible administrator as well as the limited subjects involved.

5. Conclusion
These results indicate that the GPA of preclinical and Clinic score can use as an indicator of learning outcomes to determine cognitive test results.

References
[1] Undang – Undang Republik Indonesia Nomor 12 Tahun 2012 tentang Pendidikan Tinggi, 10 Agustus 2012, Lembaga Negara Republik Indonesia, Jakarta, 2012.
[2] Undang – Undang Republik Indonesia Nomor 20 Tahun 2013 tentang Pendidikan Kedokteran, 6 Agustus 2013, Lembaga Negara Republik Indonesia, Jakarta, 2013.
[3] Permen RISTEKDIKTI Nomor 18 Tahun 2015 tentang Tata Cara Pelaksanaan Uji Kompetensi Mahasiswa Program Profesi Dokter dan Dokter Gigi., 15 Juni 2015, Lembaga Negara Republik Indonesia, Jakarta, 2015.
[4] Manuputty J et al. Correlations between Medical Students National Admission Test Score, Preclinical and Clinical Year Mean Cumulative GPA and UKDI Score. American Journal of Educational Research, 2015, Vol. 3, No. 6, 697-701
[5] Suswati I and Rahayu . Validitas Prediktif Uji Kompetensi Mahasiswa Program Profesi Dokter (UKMPPD) Pada Tahap Profesi. SM Vol. 15 No. 1 Juni 2019 Page 1-11.
[6] Febrianti W, Maya FM, and Virginia PM. Hubungan IPK Sarjana dan Profesi dengan Nilai CBT, OSCE, dan Hasil UKMPPD Di Fakultas Kedokteran Universitas Sam Ratulangi Periode Mei dan Februari 2017. Jurnal e-Biomedik (eBm), Volume 5, Nomor 2, Juli-Desember 2017.
[7] Pitra and Resti. The correlation of preclinical GPA score in faculty of medicine of university of baiturrahmah with national board examination result. International Journal of Medical Science and Clinical Invention 6(4): 4403-4406, 2019.
[8] Zahn CM, Saguil A, Artino AR, et al. Correlation of National Board of Medical Examiners scores with United States Medical Licensing Examination step 1 and step 2 scores. *Acad Med* 2012; 87: 1348–1354.

[9] Pusparini M, Imaningdyah A, Andayani SH, Mahardhika ZP, Miranti DD. Hubungan antara IPK program sarjana kedokteran dengan nilai UKMPPD mahasiswa FKUY. *JK Unila*. 2016; 1: 235-42.

[10] Wilkinson D, Zhang J, Byrne GJ, Luke H, Ozolins IZ, Parker MH and Peterson RF. 2008. Medical school selection criteria and the prediction of academic performance: Evidence leading to change in policy and practice at the University of Queensland. *Medical Journal of Australia*. 188: 349-354.