

Difference of Multidisciplinary Examination and Student Objective Oral Case Analysis Scores of Indonesian Medical Students

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ABSTRACT

Learning duration is one of factors that can influence student achievement. The number of learning weeks in the Undergraduate Program, Faculty of Medicine, Universitas Padjadjaran (Program *Studi Sarjana Kedokteran Fakultas Kedokteran Universitas Padjadjaran* or PSSK FK Unpad) had changed since the 2018/2019 academic year. This study aims to investigate the differences of Multidisciplinary Examination (MDE) and Student Objective Oral Case Analysis (SOOCA) scores of students whom the number of learning weeks were different. This study was conducted using a numerical comparative bivariate analysis with cross-sectional design. The data used in this study was MDE and SOOCA scores of Endocrine and Metabolism System (EMS) and Neuro-Behavior and Special Sense System (NBSS) of medical students batch 2016 who experienced 16 weeks of learning as well as batch 2017 who had 14 weeks of learning. Mann-Whitney test shows a significant difference of median in the EMS MDE scores between batch 2016 and 2017 (Me batch 2016=77.33; Me batch 2017=63.75; $p<0.001$). A significant difference of median was also found in MDE scores of NBSS between both batches (Me batch 2016=80.20; Me batch 2017=61.43; $p<0.001$). A single SOOCA examination was used to assess both EMS and NBSS simultaneously, and the median of its score between batch 2016 and 2017 was found to have no significant difference (Me batch 2016=79.25; Me batch 2017=80.00; $p>0.05$). This study shows that different number of learning weeks might contribute to the differences in the students' achievement of MDE scores.

KEY WORDS: MDE SCORE, NUMBER OF LEARNING WEEKS, SOOCA SCORE.

INTRODUCTION

Learning achievement is an important thing to be achieved by students because it could show the level of students understanding about the material being taught. It is shown by the examination scores and the Grade Point Average (GPA). The study conducted in

2014 revealed that the factor most affecting the passing of the Indonesian Doctor Competency Examinations (*Uji Kompetensi Dokter Indonesia* or UKDI) was the GPA achieved at the undergraduate program (Utomo et al., 2014). The medical student's understanding of the material being taught could be factor that influences the level of subsequent professional misconduct (Yates and James, 2010). There are various factors that could affect the academic performance of medical students, such as the physical and mental condition, motivation, quality of life of students, pressure from parents and peers, and learning duration at university (Mandal et al., 2012, Shawwa et al., 2015, Azizollah 2016, Haque et al., 2018). The study about learning duration factor to students academic achievement is still rarely

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done. The study conducted in 2013 revealed that six years extended learning duration resulted better graduates in terms of grades and time needed to graduate compared to five years learning duration (Tešija *et al.*, 2013). The study on learning achievement differences of medical students if the length of learning duration have a difference that are not so long or only few weeks has never been done.

The number of learning weeks in several system blocks in PSSK FK Unpad had changed since the 2018/2019 academic year (FK Unpad, 2017) (FK Unpad, 2018). This was in line with the Unpad policy to uniform academic schedules throughout undergraduate study programs. The system blocks that had changes in the number of learning weeks for 2nd year medical students in odd semester were EMS and NBSS (FK Unpad, 2017) (FK Unpad, 2018). The number of learning weeks of EMS in the 2017/2018 academic year (medical students batch 2016) was six weeks, while in the 2018/2019 academic year (medical students batch 2017) reduced into five weeks (FK Unpad, 2017) (FK Unpad, 2018). The number of learning weeks of NBSS which was previously ten weeks changed into nine weeks (FK Unpad, 2017) (FK Unpad, 2018). This study aims to investigate learning achievement differences in the MDE and SOOCA scores of the EMS and NBSS between the batch 2016 and 2017 who have different number of learning weeks. The results

of the study are expected to be utilized as a consideration for policy makers in FK Unpad especially and Unpad generally in making policies regarding the academic system which will be applied.

MATERIAL AND METHODS

Ethical statement: This study was conducted after getting approval from Ethical Committee of Universitas Padjadjaran Bandung No. 885/UN6.KEP/EC/2019. Study design: This study was a cross-sectional numerical comparative bivariate analytic using secondary data. The data used were MDE and SOOCA scores of EMS and NBSS.

Materials and/or Subjects: The population of this study were the medical students of PSSK FK Unpad batch 2016 and 2017 who had different number of learning weeks (6 and 10 learning weeks of EMS and NBSS respectively in batch 2016 and 5 and 9 learning weeks of EMS and NBSS respectively in batch 2017), accepted through Seleksi Nasional Masuk Perguruan Tinggi Negeri (SNMPTN) or Seleksi Bersama Masuk Perguruan Tinggi Negeri (SBMPTN) and did the tests for the first time.

The students who did the tests outside the first exam schedule were excluded from this study. The variables analyzed in this study were MDE and SOOCA scores of EMS and NBSS of medical students batch 2016 and 2017. The data were obtained from Academic Assessment Unit, Faculty of Medicine, Universitas Padjadjaran.

Statistics: This study used total sampling technique. Statistical analysis was performed using Mann-Whitney testing, and processed using IBM® SPSS® version 20.

RESULTS AND DISCUSSION

There were 258 students at the beginning of the 2016/2017 academic year (medical students batch 2016) and 271 students at the 2017/2018 academic year (medical students batch 2017) who were registered as new medical student in FK Unpad. In the batch 2016, 126 students entered through the SNMPTN and 132 students

Table 1. Characteristics of research subjects

	2016 batch n = 258 (%)	2017 batch n = 271 (%)
Gender:		
Males	87 (33.72)	94 (34.69)
Females	171 (66.28)	177 (65.31)
Age average	18	18
Entrance selection:		
SNMPTN	126 (48.84)	104 (38.38)
SBMPTN	132 (51.16)	167 (61.62)
GPA average of 1 st year study	3.44	3.45

Table 2. Data processing result of the EMS MDE scores

	EMS MDE	
	2016 batch (6 learning weeks, n = 228)	2017 batch (5 learning weeks, n = 265)
Median	77.33	63.75
Maximum	89.33	79.38
Minimum	49.33	43.13
p	<0.001	

Table 3. Data processing result of the NBSS MDE scores

	NBSS MDE	
	2016 batch (10 learning weeks, n = 252)	2017 batch (9 learning weeks, n = 263)
Median	80.40	61.43
Maximum	89.20	77.29
Minimum	52.40	41.68
p	<0.001	

through the SBMPTN, while in the batch 2017, 104 and 167 students entered through the SNMPTN and SBMPTN, respectively. Both of the batches had same age average, 18 years old, when the first year of study was begun. The GPA average obtained by the batch 2016 in the first year of study was 3.44, while the batch 2017 obtained 3.45. Characteristics of research subjects can be seen in table 1. There were 228 and 265 data of the EMS MDE scores of students batch 2016 and 2017 respectively, after data selection was done. The EMS MDE scores data obtained were tested using the Mann-Whitney test due to abnormal data distribution. The p value=0,000 obtained from the analysis using the IBM® SPSS® version 20 was used to reject the null hypothesis.

Thus, in the EMS MDE scores result, it can be found a significant median difference between the batch 2016 with six weeks of learning duration and batch 2017 with five weeks of learning duration. Data processing result of the EMS MDE scores is shown in table 2. After data selection done on the NBSS MDE scores data, there were respectively 252 and 263 data scores of students batch 2016 and 2017. The NBSS MDE scores data obtained were tested using the Mann-Whitney test due to abnormal data distribution. The p value=0,000 obtained from the analysis using the IBM® SPSS® version 20 was used to reject the null hypothesis. Thus, on the NBSS MDE scores, the significant median difference can be found between the batch 2016 with ten learning weeks and the batch 2017 with nine learning weeks. Data processing result of the NBSS MDE scores can be seen in table 3.

The number of the EMS+NBSS SOOCA scores data of medical students batch 2016 and 2017 respectively were 244 and 261 after data selection conducted. The EMS+NBSS SOOCA scores data obtained were tested using the Mann-Whitney test due to abnormal data distribution. The p value=0.987 obtained from the analysis using the IBM® SPSS® version 20 using was used to accept the null hypothesis. Thus, in the EMS+NBSS SOOCA scores, no significant median difference was found between the batch 2016 and 2017. Data processing result of the EMS+NBSS SOOCA scores can be seen in Table 4.

In this study, it was found that the EMS and NBSS MDE scores achieved by medical students batch 2016 (6 learning weeks of EMS and 10 learning weeks of NBSS) were higher than batch 2017 (5 weeks learning of EMS and 9 weeks learning of NBSS), either from the median, the highest, or the lowest score. The batch 2016 medical students had one week longer than batch 2017 in learning weeks number either for EMS or NBSS blocks. The one week difference of learning duration could affect students in reading material deeperly. The MDE examines the level of students material knowledge in depth, thus one week difference of learning duration

in each system blocks could influence the students ability in answering MDE questions. The previous study revealed that longer learning duration resulted graduates with better grades than shorter learning duration (Tešija *et al.*, 2013). The difference of difficulty level of MDE questions between the batch 2016 and 2017 may also cause significant differences in the achievement of the EMS and NBSS MDE scores. The EMS+NBSS SOOCA scores achievements between the batch 2016 and 2017 were not found significant median difference.

This could be due to the same tutorial cases of EMS and NBSS blocks between the batch 2016 and 2017 and also the tutorial process that made students familiar doing presentations. The SOOCA exam is one of components of learning process assessments in FK Unpad that assesses the medical students' analytical ability by presenting cases in front of the examiners. The cases examined in SOOCA are all cases that have been studied by students in the tutorial. There are several cases studied in one block system. The students do not know which case they will get and present. It will be determined when students enter the presentation material making room. Therefore medical students tend to prepare the SOOCA in long period of time to master all the tutorial cases.

The high study motivation of students batch 2016 and 2017 to get good score on the SOOCA could also be a reason why the results of the EMS+NBSS SOOCA scores were not found significant median difference. The SOOCA score is one of the determinants of the final system block score which has big proportion. The learning strategy of the students batch 2016 and 2017 are self-directed learning, as a result of the implementation of the Problem Based Learning (PBL) system at FK Unpad (Loyens *et al.*, 2008) (Universitas Padjadjaran, 2018). Previous study has shown that good motivation and learning strategy will result in good test scores (Azizollah *et al.*, 2016).

This study has not been conducted before, i.e. investigating differences in learning outcome if the learning duration difference is not too long. The limitation of this study is that it did not investigate the differences of learning

Table 4. Data processing result of the EMS+NBSS SOOCA scores

	EMS+NBSS SOOCA	
	2016 batch (16 learning weeks, n = 244)	2017 batch (14 learning weeks, n = 261)
Median	79.25	80.00
Maximum	100.00	96.00
Minimum	16.00	0.00
P		0.987

achievement in other system blocks. This study did not consider the difficulty level of the MDE questions between the 2016 and 2017 batches. Previous study revealed that there was an unexpected impact of the Multiple Choice Question (MCQ) exam type in the learning process of medical students (Aras *et al.*, 2014). The students only studied exam questions of previous batches before the exam (Aras *et al.*, 2014), therefore when they faced new exam questions, the students can not answer it optimally. Based on these findings, the study can also be further developed by taking into account the level of difficulty of the MDE questions of 2016 and 2017 batches compared to the previous batches exam questions, since it can affect the ability of students to answer the MDE questions. Further study that aims to investigate the factors that can influence the learning achievement is required in order to obtain a comprehensive research results regarding the factors that can affect students academic achievement.

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