

# Comparative Analysis of Clinical Clerkship Location Towards Objective Structured Clinical Examination (OSCE) Score of Clinical Clerkship Student

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## ABSTRACT

**Background and Objectives:** Clinical skills are part of competencies that Clinical Clerkship Student has to achieve and be undertaken at hospital evaluated by OSCE's method. The purpose of this study aimed to examine the difference in the achievement of clinical skill's competency score that worked at networking hospital in and outside of Makassar.

**Method:** This study used descriptive analysis with retrospective approach. The data was analysed using Mann-Whitney test.

**Result:** The sample of this study involved 1.723 clinical clerkship students of Medical Faculty, Universitas Muslim Indonesia between January-December 2019 consisting of 1.207 students at networking hospital in Makassar with 13 departments and 12 hospitals in and outside Makassar. Mann Whitney test obtained Asymptotic Significance (2-sided) score by 0,544.

**Conclusion and Suggestion:** There is no significant difference between OSCE's score of clinical clerkship student at networking hospital in and outside of Makassar. The determination of clinical clerkship location can be done flexibly.

**Keywords:** Clinical Clerkship, OSCE, Location, Student.

## 1. INTRODUCTION

The process of medical education in Indonesia consists of two phases, pre-clinical and clinical clerkship. These two phases are continuous by using a competency-based curriculum. Clinical clerkship is an important phase in medical education. This aims to fulfill the competence of doctors.[1]

The doctors' competency refers to the competency standards of Indonesian doctors including health problems, diseases and skills. Obviously, it is pivotal to realise qualified and competent doctor graduates. Therefore, to improve the health service requires enhanced skills of medical clinics in the learning process.[2]

Clinical skills in clinical clerkship are performed as an implementation way of medical science to patients based on clinical practice procedures. Clinical Skills comprise skills in conducting diagnosis through anamnesis, physical examination, investigations and management skills in management procedures of the patient's health

problems. This process takes place in hospitals and primary health services.[3]

Clinical skills are essential for a doctor. Hence, medical education institutions are required to utilise a Competency-Based Curriculum. It aims to ensure that the graduates from the institutions can achieve the specified competencies. The curriculum includes basic clinical skills for every student currently pursuing medical education. Basic clinical skills for medical students are to implement procedures and clinical competences following the guidance of a supervisor at hospital.[2]

Evaluation of the implementation of the curriculum and the teaching and learning process is held by each institution. Objective Structured Clinical Examination (OSCE) is a evaluation method of clinical student proficiency developed since 1970. OSCE refers to a structured and objective examination of clinical abilities. The method employed is to assess students appearance and competence. The observer performs evaluation

using assessment indicators or assessment scales. Evaluation by OSCE is conducted at the end of each department before proceeding to the next department in medical faculty, Universitas Muslim Indonesia. It is intended that the clinical clerkship student can gain a well comprehension of the competence clinical skills in each department which will later become one of the assessment items in the Indonesian Doctors Competency Exam.[2], [4]–[6]

The clinical clerkship location has a strong effect in the learning process of medical students because it serves real evidence and opportunities for students. Additionally, it aims to actively involve students in clinical activities and integrated learning during history taking, physical examination, making clinical decisions and professionalism.[7] Due to the limitations of clinical educational facilities in the city of Makassar, the medical faculty of Universitas Muslim Indonesia collaborates with hospitals outside the city.

As stated above, the researchers aim to analyse the differences in the location of the clinical clerkship on the achievement of skills competencies through the OSCE scoring method.

## 2. METHOD

This research analysis was undertaken using a descriptive-analytic method combined with a retrospective approach. The research engaged all of clinical clerkship students of medical faculty, Universitas Muslim Indonesia who performed clinical clerkship in January to December 2019. There were 13 departments involved in this research, consisting of *Pediatric, Internal Medicine, Cardiology, Radiology, Mental Medicine, Dermatology-Venerology, Neurology, Obstetrician-Gynecology, Surgery, Ophthalmology,*

*Otorhinolaryngology, Orthopedics, and Anesthesiology.* The number of hospitals chosen for the clinical clerkship locations in this study was 12 including 9 hospitals in Makassar and 3 hospitals of outside Makassar areas (Maros District, Parepare City and, Palopo City). The samples in this study were 1,723 students collected using the total sampling method. From the total participants, 1,207 students run clinical clerkship based in Makassar city hospitals network and 516 students located at hospitals network outside Makassar city.

Data collection in this study was obtained from the OSCE value from all clinical sections in that period. The calculation of OSCE score employed the actual mark formula, in which value was divided by the maximum value in the scoring rubric multiplied by 100%. The OSCE score result was between 0-100%. OSCE evaluation was held at UMI's medical faculty assessed by 2 clinical educators from each department.

The data was analysed using the Mann-Whitney test to determine the effect of clinical clerkship location in Makassar city hospitals and outside Makassar City on the OSCE value. This research had received consent from the ethics commission of medical faculty, Universitas Muslim Indonesia.

## 3. RESULTS

1,723 participants of Clinical Clerkship Students medical faculty of the Universitas Muslim Indonesia performed a clinical clerkship from January to December 2019. 1,207 students were located in Makassar City and 516 students were based in network hospitals outside Makassar City.

**Table 1. Characteristics of Clinical Clerkship Locations and OSCE Score**

Departments	In Makassar			Outside Makassar		
	Total	Mean	St. Dev	Total	Mean	St. Dev
Anesthesiology	98	82,60	9,36	37	78,85	14,92
Mental Medicine	119	78,07	10,49	31	76,15	10,05
Pediatric	63	64,57	16,81	24	70,09	13,68
Surgery	93	85,19	9,56	49	84,31	9,95
Cardiology	96	88,13	8,80	67	89,17	7,05
Ophthalmology	105	81,53	13,81	69	82,99	13,42
Internal Medicine	96	73,69	22,90	53	76,94	18,28
Dermatology	40	70,19	11,62	15	69,07	13,03
Otorhinolaryngology	115	88,44	7,27	37	88,88	7,25
Neurology	131	88,83	4,74	31	86,56	5,60
Obstetry-Gynecology	117	83,59	12,14	43	83,70	10,71
Orthopedic	117	79,76	10,00	54	79,81	10,40
Radiology	17	78,32	14,11	6	80,00	7,13
Total	1207			516		

The average OSCE scores from 13 departments depicted on table 1 show the differences varied from high to low achievements. This study reported that the most significant performances throughout Makassar city were obtained from *Neurology* department comprising 131 students with an average score of 88.83, *Otorhinolaryngology* department at 88.44 including 115 students, *Cardiology* department at 88.13 of 96 students, and *Surgery* department at 85.19 of 93 students. Meanwhile, the high grade were drawn from hospitals outside Makassar indicating various averages from *Cardiology* department at 89.17, *Otorhinolaryngology* department at 88.88, *Neurology* department at 86.56.

Surprisingly, from the data, it shows the hospitals inside the city indicating the lowest grade from *Pediatric* department by 64.57. Additionally, *Dermatology* department received the least score by 69.07.

**Table 2. Mann-Whitney Test Results**

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Mann-Whitney U	305.664.500
Wilcoxon W	439.050.500
Z	-.607
Asymp. Sig. (2-tailed)	.544

The Asymptotic Significance (2-sided) value at 0.544 can be seen from table 2, which means more significant than 0.05. The data above confirms that there is no effect on clinicalxs clerkship locations between inside and outside Makassar based on the OSCE value.

#### 4. DISCUSSION

The clinical clerkship environment has a strong influence on the learning process of medical students, because students are provided with concrete environment and opportunities to be actively engaged in clinical activities and integrated learning during anamnesis, physical examination, clinical decision making and professionalism.[7] The results of this study are satisfactory to demonsrate that there are no significant differences in the quality of clinical clerkship education in different locations based on OSCE scores. As a result, medical education institutions limited in clinical clerkship education facilities in large urban networks due to a large number of medical education institution administrators in one city can consider hospital networks outside big city as an alternative placement for clinical clerkship education.

This study was conducted to determine the effect of clinical clerkship location on OSCE grades by

comparing Clinical Clerkship Students who undertook clinical clerkship in Medical Faculty of Universitas Muslim Indonesia throughout network hospitals in and outside Makassar City. From the result, it confirms irrelevant relation between the location of clinical clerkship in and outside Makassar City on the OSCE value. Besides, the data shows that the competence and quality achievement of clinical skills do not differ from Clinical Clerkship Students either located inside or outside Makassar city.

It happens due to number of different cases between network hospitals in and outside Makassar City likely to be the same. In addition, the large amount of exposure to the number and variety of patient cases is important in developing student clinical competence, causing educational institutions to use several hospitals and community health centers as a media for clinical education. However, if it is not performed along with quality clinical supervision, the exposure of a large and varied number of cases will not have a significant effect on the development of student clinical competence. From several clinical learning environment variables, quality clinical supervision is the main key to achieving an effective clinical learning process.[8], [9]

One of the efforts made by the medical faculty of UMI to maintain and improve the quality of clinical clerkship students, especially skills, is by carrying out Clinical Skill Training held before the clinical clerkship students started clinical clerkship at the hospital in each department. Medical faculty involves upervisors who are trained with clinical skills according to SKDI. Also, periodic evaluations are undertaken on the number of cases achieved and clinical skills in each clinical clerkship location. The training conducted before running clinical clerkship at the hospital is in line with research by Cecilia et al in 2015 in Surabaya. The study found an effect of training in medical and clinical skills to enhance skills, making it easier for clinical clerkship students to master materials and link material and practice to UKMPPD OSCE scores.[10]

The clinical clerkship location setting is determined by the doctor's professional study program randomly by adjusting the number of Clinical Educators in the hospital. Therefore, every clinical clerkship student has the same opportunity to be placed in clinical clerkship with a large variety of cases and a good mentoring process from a Clinical Educator (DPK).

Komasawa, et al in 2020 conducted a skill competency assessment using the OSCE method for medical students in Japan to predict the student's performance in running clinical clerkship. The result stated that this assessment plays an important role in predicting the performance of clinical clerkship

students in Japan. However, this is not in line with research conducted by Ting Dong, et al. In 2012 which showed a slight correlation between OSCE scores at various stages and medical education performance standards. [11], [12]

It is expected that the clinical clerkship process in network hospitals can be a media for clinical clerkship student enabling students to obtain clinical skills according to the competency standards of Indonesian doctors and be able to carry out clinical skills independently.

## 5. CONCLUSION

The results of this study conclude that there is no significant difference in OSCE grades on students who perform clinical clerkship based on location network hospital inside and outside Makassar. Hence, the placement of clinic clerkship location can be done flexibly.

## AUTHORS' CONTRIBUTIONS

All authors had shown tremendous contribution in study planning, and collecting and interpreting data and, reviewed and approvment at the final stage of completion.

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