



## **Do Gender and Place of Residence Affect the Tutorial Scores of Medical Students? A Preliminary Study Conducted in a Private Medical School, Jakarta- Indonesia**

**Forman Erwin Siagian<sup>1\*</sup>, Lusia Sri Sunarti<sup>2</sup>  
and Gracia Jacqueline Rieny Tuamelly<sup>3</sup>**

<sup>1</sup>*Department of Parasitology and the Centre of Biomedic Research, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia.*

<sup>2</sup>*Department of Microbiology, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia.*

<sup>3</sup>*Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia.*

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Introduction:** Medical students are future doctor candidates. They must learn about diseases, infectious and non-infectious, during their education period. What the students have to learn is being packaged in integrated blocks. Tutorial is one of the Problem Based Learning (PBL) methods in medical education whose activities are entirely learner-centered. It is a focus group discussion (FGD) based activity, consist of 7-8 students and supervised by one lecturer called tutor who will provide an assessment at the end of each session. The aim of this study is to characterize whether gender and place of residence affect the student's tutorial score.

**Methods:** This retrospective cross sectional study conducted from April to May 2021 at the Faculty of Medicine, Universitas Kristen Indonesia, Jakarta-Indonesia. All data of active students gathered

\*Corresponding author: E-mail: [forman.siagian@uki.ac.id](mailto:forman.siagian@uki.ac.id);

from education manager office. Simple descriptive statistic operation conducted whenever necessary. Data about place of residence obtained electronically using simple G-form survey.

**Result and Discussion:** Data comes from 607 active students were eligible for further analysis. Total mean of tutorial score based on their batch (2017, 2018, 2019, 2020): 15.53; 16.24; 15.82 and 15.06. The highest mean tutorial score is 16.34 in the group of female students who live in their own home from the class of 2018 and the lowest score is 14.74 in the group of male student who live in the boarding house from the class 2020.

**Conclusion:** Female students have a higher mean tutorial score compared to male students, and those who live at home with their parents also have a higher average score than those who live in a boarding house, by themselves. As our students become more senior, the better their tutorial scores.

*Keywords: Tutorial; problem based learning; boarding house; infectious; non infectious; doctor; discussion.*

## 1. INTRODUCTION

Indonesia's Medical students as future medical doctors, just as their fellow medical students in any other country in the world, in general must be taught about all type of disease, infectious and the non-infectious based illness [1]. Exposure is given during their whole education period, using several methods [2,3]. At our faculty of medicine, the educational curriculum has adopted competency standards for Indonesian doctors (*Standar Kompetensi Dokter Indonesia/SKDI*) which are contained in the core curriculum. Basically, our curriculum divided into 2 phase, the preclinical and the clinical phase. Our pre clinical phase normally lasts for 7 semesters with a total 21 blocks (3 blocks for each semesters). The clinical phase normally lasts for 4 semesters [4].

Learning methods in the pre-clinical phase are block scheduling (integrated) [5]. According to the standard of Indonesia's medical education curriculum, and it consist of a mixture between Expert Lectures, Expert Consultations, Practicum/laboratory activity, Tutorials, Skills Lab, Field Study, Independent Study and Independent Group Discussions [4]. Covid pandemic give challenge and made it more difficult to deliver suitable education for the students [6].

Tutorial in the context of PBL is an active learning process in a small focused group discussion (consist of 7 to 8 students) facilitated by a lecturer as the tutor [7]. The discussion is stimulated with some medical problem presented in the form of a scenario, using seven jump methods [8]. The overall objective is to stimulate student's body of knowledge.

Each block lasts for 6 weeks; it consists of 5 weeks of learning and the last week (the 6<sup>th</sup> week) allocated for exams. Each week, tutorial activity consists of two discussion sessions (@100 minutes), usually conducted on monday and thursday or tuesday and friday. So, in total each block has 10 tutorial sessions whose topics change every week.

Every student encouraged to participate actively so they can evenly contribute and also complement each other's knowledge and information about the pre-determined problem they are focusing on [4,8]. After each discussion session, the tutor will provide an assessment based on his/her observations of the activeness of the participants that divided into four category namely (1) responsibility, (2) information processing, (3) communication and (4) insight. The lowest score is 1 and the highest score is 5 for each category. The final score for each discussion session ranging between 4 to 20.

The aim of this short preliminary study is to characterize the student's mean tutorial score in each block based on the student's gender and place of residence (live in their house with their parents or live alone in a boarding house) and also comparing the trend of tutorial value among the four batches (2017, 2018, 2019 and 2020).

## 2. MATERIAL AND METHODS

This cross sectional study conducted from April to 2<sup>nd</sup> week of May 2021 at the Faculty of Medicine, Universitas Kristen Indonesia, Jakarta-Indonesia. It was a mixture between data of tutorial score with data of place of living obtained from Google-form™ questionnaire. Data of tutorial score from the class of 2017, 2018, 2019, and 2020 collected through the manager of the

Undergraduate Medical Education Program (*Program Pendidikan Sarjana Kedokteran/ P2SK*).

The inclusion criteria are active students that had complete score for each session. All data initially made available in Microsoft Excel™ and then further classified and processed using SPSS. Simple descriptive statistic operation conducted whenever necessary. Data about place of residence obtained electronically using simple G-form survey.

**3. RESULTS AND DISCUSSION**

During data collection, there are 612 active students from all class of 2017, 2018, 2019 and 2020, but only 607 students were eligible for further analysis due to incomplete or inappropriate data. For the class of 2020 data collected from block 1, 2 and 3. For the class of 2019 data collected from block 1 to block 9, the class of 2018 from block 1 to block 15 and on the other hand, only class of 2017 which have complete data from block 1 to block 21. Total number of our respondents from class 2017, 2018, 2019 and 2020 respectively are as follows 169, 155, 141, and 142. In total number, 132,933 data were collected for further processing and analysis. Data is presented in the form of tables and graph.

Table 1 showed us the distribution of our students based on their gender and their place of residence. Based on the gender, ratio of male vs female respondents from class 2017, 2018, 2019 and 2020 is as follows: 0.50; 0.35; 0.39 and 0.35. The number of female respondents is greater than male respondents in all batch (2017 – 2020)

and actually this reflects the actual gender composition of our students. This condition has been going on for a long time in our faculty. There is no clear national data regarding this comparison of numbers. Moberly [9], cited the data from the Higher Education Funding Council for England that the actual number of female students in British medical school increasing steadily, from 53.4% in 1996-97 to 60.9% in 2003-04. According to McKinstry [10], The numbers of women and men entering medical school supposed to roughly reflect the actual numbers in population and perhaps this is due to equal opportunity. But in the background probably there are also powerful financial/economic and workforce arranging reasons. Further study must be conducted in order to probe whether this is due to the impact of the feminization of medicine.

On contrary, according to their batch and also gender, the number of students who live at home with their parents is exceed the number of students who live in the boarding house (71.16% vs 28.82%). Ratio of the student based on their place of residence, living in a boarding house alone vs living in their own home with their parents from the class 2017, 2018, 2019, and 2020 is as follows: 0.89; 0.70; 1.1 and 0.42.

In pursuit of qualified higher education, especially being a medical doctor, candidates from rural areas/province come and wander to the big city where there are medical faculties who are willing to accept them as their student. As a result, students find themselves in crowded residential areas and big city urban slums area. A study conducted by Decena [11], support the result of

**Table 1. Distribution of our respondents from the class of 2017, 2018, 2019 and 2020 based on their gender and place of living (whether they are living in a boarding house or in their own home with their parents)**

Class of	Gender			
	Male		Female	
	Boarding house n (%)	Home n (%)	Boarding house n (%)	Home n (%)
2017 (n=169 <sup>*</sup> )	24 (14.2%)	33 (19.52%)	56 (33.13%)	56 (33.13%)
2018 (n=155 <sup>*</sup> )	16 (10.32%)	25 (16,12%)	48 (30.96%)	66(42.58%)
2019(n=141 <sup>*</sup> )	16(11.34%)	24(17.02%)	58(41.13%)	43(30.49%)
2020(n=142 <sup>*</sup> )	12(8.45%)	25 (17.6%)	30 (21.12%)	75 (52.81%)
Total number (n=607)	68 (11.2%)	107(17.62%)	192 (31.63%)	240 (39.53%)

<sup>\*</sup> The number of active students whose data can be processed further

**Table 2. Distribution of students from the class of 2017, 2018, 2019 and 2020 based on their overall mean tutorial score**

Class of	Gender			
	Male		Female	
	Boarding house Mean score (SD)	Home Mean score (SD)	Boarding house Mean score (SD)	Home Mean score (SD)
2017 (n=169)	15.17 (0.74)	15.53 (1.14)	15.61 (0.69)	15.61 (1.35)
2018 (n=155)	16.19 (0.84)	16.16 (0.45)	16.19 (0.41)	16.34 (0.35)
2019 (n=141)	15.7 (1.4)	15.64 (1.14)	15.73 (1.43)	16.1 (0.37)
2020 (n=142)	14.74 (2.13)	14.89 (2.72)	14.76 (2.74)	15.30 (1.69)

this study. Decena found out that living conditions of boarding houses and dormitories influence the well-being of the state university students; and the respondents' were rated the highest to the lowest: (1) physical well-being, (2) emotional well-being, (3) social well-being and (4) academic well-being. It cannot be denied that these findings by Decena seem to confirm what is presented in Table 2.

Deneisha [12] in Solo, central Java Indonesia found out that statistically, there is a significant difference in motivation between medical students who live with their parents which have higher learning motivation compared with the ones who lived in boarding house at faculty of medicine Universitas Sebelas Maret ( $P=0.001$ ). Deneisha also found out that female students have higher learning motivation than male students and the result is that the academic achievement of female students is also better [12]. It would be very interesting to conduct further study to explore whether gender and place of residence influence learning motivation of our students, which in turn will affect their academic achievement.

Many studies show demographic changes in the society may also affect higher education, research and development and also future job opportunity. In a study of women in the field of internal medicine cited by McKinstry [10], the fact that female doctor with children had fewer publications compared to male doctor with children eventhough there is no significant differences between the sexes were seen for doctors without children regarding scientific publication. McKinstry [10], also found out that in the form of primary care service settings, women doctor were contributing about 60% of the activity compared to men in routine and even expansion feature of routine general practice (e.g., teaching, research, training, and organization/committee

work) and It is not clear whether this is due to their own-choice or due to the lack of opportunity to female doctor.

Table 2 showed us the distribution of mean tutorial score students from the class of 2017, 2018, 2019 and 2020 based on their gender and their place of residence. Total mean of tutorial score based on their batch (2017, 2018, 2019 and 2020) is as follows 15.53; 16.24; 15.82 and 15.06. The highest mean tutorial score is 16.34; that score achieved by the group of female students who live in their own home from the class of 2018 and the lowest score is 14.74 and it is achieved by the male student who live in the boarding house from the class 2020. In general, female students from all class (2017 to 2019), whether they are living in boarding house or in their own home with their parents, achieved better score than male students except for female students of the class 2020 that live in the boarding house which get a slightly lower score if compared to the male students of the class 2020 that live in their own home.

Actually, study regarding gender composition and place of residence among medical students in Indonesia is limited. In other aspect regarding this topic, Palupi and Findyartini [13] conducted a study about the relationship between gender and coping mechanisms with burnout events in first-year medical students and their result was adaptive coping had a positive correlation with perception of personal accomplishment. From their perspective, adopting an appropriate coping mechanism may help students to minimize the negative side effect of tough and very demanding medical education. A decrease in academic performance may be seen in medical students who are struggling to cope with stress (e.g., burnout due to emotional exhaustion and depersonalization) [14,15]. Excessive workload, difficulties with studying and time management,



**Fig. 1. Trendline of mean tutorial score of our respondents based on their gender and their place of residence. Almost all groups have an upward/positive trend, with the exception for the class 2020, where almost all groups in it have a downward/negative trend, except for male students that live in boarding house.**

conflicts in work–life balance and relationships, medical school peer relations, health concerns, and financial stressors, unique system-level concerns/difficulties e.g., medical school administrative failures, concerns about lack of assistance with career planning, and assessment-related performance pressure are some example of condition that might also interfere with student’s academic performance.<sup>15</sup> In other words, gender and place of residence are not necessarily the only main factors affecting medical student academic achievement but however, medical faculty should still consider it as a material for consideration in order to designing an education pattern that can accommodate their students need and maintain their quality [16,17]. Perhaps by the use of technologies, it can provide the fundamental infrastructure and strong basis for addressing many of the challenges in providing and also improving medical education [17].

Fig. 1 showed us that the mean tutorial score for each block is not stable but dynamically has a rising or falling pattern in some point. Class of 2017 and class of 2018 seems to have almost the same pattern, while the class of 2019 to some point is in the value range between class 2017 and class 2018. Unfortunately, class of

2020 showed unsatisfactory score with sharp downward trend. This downward trend probably because they are in the very beginning of their education and still having trouble in following the dynamics of medical education. But seeing from the data for their senior (2017,2018, and 2019), the trend usually bounce up in the higher blocks. But once again, the the mean tutorial score is very dynamic. It is very interesting to probe what factors influence the dynamics of the tutorial score.

Multivariate statistical test analysis on batch/class against mean tutorial score using Pearson test showed there is a correlation between them. ( $P < 0.05$ ). On the other hand, another statistical operation using Pearson chi square on gender against mean tutorial score showed no correlation ( $P > 0.05$ ) and place of residence vs mean tutorial score also showed no correlation ( $P > 0.05$ ). To the best of our knowledge, this kind of research has not been widely carried out in medical faculties in Indonesia; and this is the novelty offered through this research.

Tutorial is one of the Problem Based Learning (PBL) methods whose activities are entirely learner-centered [18]. Initially, it was introduced

by dr. Howard Barrows, an American physician and medical education expert [19]. Until nowadays, tutorial continues to be used widely by numerous medical faculties with local adjustment or even modification, based on faculty needs. Tutorial enables learners to learn individually and collectively, to hone their skills and attitudes, including their communication skills. These skills and attitudes include teamwork, cooperation, respecting group member's perspective, leadership, and interaction with other group members. With so many advantages of tutorials in modern medical education, the results of this simple study should be used as input to improve its implementation in the future.

#### 4. CONCLUSION

In general, female students had a higher mean tutorial score compared to male students and those who live at home with their parents also have a higher average score than those who live in a boarding house, by themselves. Statistically, significant correlation only happened between batches (class) with the overall mean tutorial score. As our students become more senior, there seems to be academic improvements that can be seen from the better score their academic achievement, including their tutorial scores.

#### ETHICAL APPROVAL AND CONSENT

Institutional ethical clearance from our scientific committee obtained prior the study conducted. All authors declare that written informed consent was obtained from the respondent prior the survey about place of residence conducted. To each potential respondent, sufficient explanation about the aim of the study was given in the introduction part of the questionnaire.

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#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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