

**Correlation of Multiple-Choice Examination Scores with Oral Examination Scores
of the Second Year Undergraduate Program Faculty of Medicine Universitas
Padjadjaran**

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Abstract

Background: COVID-19 pandemic causes several changes in daily activities, one of them is medical students' online lecture and examinations. Educational evaluation of college student from Medical Undergraduate Study Program, Faculty of Medicine, Universitas Padjadjaran in each lesson, is done by two kinds of assessments, such as multiple choices written online examination and oral online examination. Each of them has their own advantages and disadvantages. Evaluation in Problem Based Learning (PBL) educational system is important to push the medical student's ability in learning, evaluate effectivity of learning, and test student's ability in their medical knowledge. Aim: To determine the correlation between multiple choice examination scores with oral examination scores of Second Year Undergraduate Program in Faculty of Medicine Universitas Padjadjaran Academic Year 2019/2020. Method: This research is a quantitative analytic study using a cross-sectional design. The test used is the Spearman correlation statistical test to determine the correlation between multiple choice examination and oral examination. Result: The results of the Spearman correlation test found a correlation coefficient value of 0.307 and a p-value of 0.000 which indicates that there is a significant relationship. Conclusion: There is a weak correlation of multiple-choice examination scores with oral examination scores of Second Year Undergraduate Program in Faculty of Medicine Universitas Padjadjaran Academic Year 2019/2020

Keywords: Multiple choice examination; Oral examination; medical education;

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Introduction

COVID-19 or Coronavirus disease 19 has now been designated by the World Health Organization (WHO) as a pandemic. The disease is caused by the SARS-CoV-2 virus. The spread of this virus is very fast because it is transmitted by aerosol, namely through water droplets when someone coughs or sneezes. As an effort to suppress the spread of COVID-19, several adaptations of new habits were carried out, namely by implementing health protocols such as using masks, regularly washing hands, maintaining a safe distance, and limiting physical activity to prevent crowds. Restrictions on physical activity make universities make adjustments in their lecture activities. One way to adjust lectures during this pandemic is to conduct lectures online (online). (Azlan et al. 2020; Cevik, Bamford, and Ho 2020)

Drastic changes made in a short time pose various challenges that need to be overcome by educators and students (Abdelrahim 2021). One of them is the implementation of online exams which are difficult to carry out in an orderly manner. Some of the obstacles that occur in the implementation of online exams include the limited stable internet connection, especially in Indonesia with the uneven distribution of internet access and electricity, as well as inadequate student gadgets. One of the online exams is also carried out by medical students. Medical students undergo various types of online exams, both synchronous and asynchronous, with a variety of processing methods, such as assignments, multiple-choice assessments, and oral assessments (Elsalem et al. 2021).

Medical students are known to undergo dynamic learning to conform to the *Standar Kompetensi Dokter Indonesia (SKDI)* which are legalized by the *Konsil Kedokteran Indonesia (KKI)*. Based on the *SKDI*, every doctor must have competence in order to participate in the *Sistem Kesehatan Nasional (SKN)* so that they can advance the health status of the Indonesian nation (Bitran et al. 2012, FK UB, 2013). Several aspects of assessment in medical education are useful for knowing strengths and weaknesses in the learning process, as well as knowing the achievements of students so that evaluations and considerations for new policies can be carried out (Wilkinson et al. 2002).

Evaluation of medical student learning can be done through assessment, one type of assessment that is mostly done is an exam. The exam aims to assess students' abilities in terms of understanding the material. In addition, the exam also aims to inform students about their strengths and weaknesses in understanding the material so that they can be taken into consideration by students to improve their way of learning. There are several types of exams that can be done, namely multiple-choice exams and oral exams. A multiple-choice exam is an assessment instrument in the form of a written exam, that has limited and objective answers. Another type of exam, namely the oral exam, is an assessment to assess the clinical reasoning and problem solving of students to the problems experienced by patients. The assessment carried out can be used as an evaluation and motivation so that students continue to learn (Collins 2006; Grainger et al. 2018).

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Multiple-choice exams have advantages, namely fast implementation time, broad themes of knowledge, high objectivity, easy to analyse and can be completed using a computer, can be analysed for effectiveness, transparent, and can be explained to students about right or wrong. The weakness of multiple-choice exams is that they cannot be used for the assessment of attitudes and competencies, closed questions can be used by students if the choice of answers to questions is easy to guess, and takes a long time to prepare. Oral exams have the advantage that there can be direct interaction between examiners and students, examiners can assess students' ability to solve problems, test clinical competence, ethics and professionalism, and test skills according to the needs of each student. Disadvantages of oral exams are low reliability, prioritize students who are better at communicating, and are more at risk of stress. Both types of exams need to be carried out to fully test students' abilities from various aspects (FK UB, 2013, Wilkinson et al. 2002).

During this pandemic, the exam was conducted online and its implementation caused several obstacles. Some of the obstacles include the increasing tendency of students to cheat and be dishonest when taking written exams, as well as non-optimal assessments for oral exams. Exams that are supposed to be conducted offline and modified online create problems in a fair and objective assessment. Other problems that arise include inadequate facilities and infrastructure, and it is difficult to assess the type of exam with long answers (Elsalem et al. 2021).

Assessment in Problem Based Learning (PBL) that can encourage students to learn is an assessment method that assesses learning objectives and processes. The PBL assessment method according to McDonald and Savin-Baden is to assess the practical context, the process is based on professionalism, reflection, independent learning, and conformity with learning objectives (Imanieh et al. 2014). The Faculty of Medicine, University of Padjadjaran (FKUP) applies learning using a block system (batch release).

The multiple-choice exams and oral exams conducted by medical students during the COVID-19 pandemic encountered various obstacles, such as increased cheating and the non-objectiveness of the oral exam assessments carried out. Based on this, the researcher is interested in analysing the correlation between multiple-choice scores and second-year medical students' oral exam scores. The purpose of this study was to determine the strength of the correlation between multiple-choice test scores and oral test scores for medical students.

Method

This research is a quantitative analytic study using a cross-sectional design with a sample population of 264 students of the 2019 batch of the Faculty of Medicine, University of Padjadjaran. The data was obtained from the evaluation section of the Faculty of Medicine, Padjadjaran University in November 2021. The research location is at the Faculty of Medicine, Padjadjaran University, Jatinangor. The data collected are multiple-choice test scores and oral test scores in the second year of semester 3 of the

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Padjadjaran University medical undergraduate program for the 2019/2020 academic year. [PH1]

The data were analysed using Microsoft Excel 365 and IBM SPSS 26. Because the numerical data included an abnormal distribution, the numerical data obtained were then tested using the Spearman correlation statistical test to determine the correlation between multiple-choice test scores and oral exams.

This research has been approved by the Health Research Ethics Committee, Faculty of Medicine, Padjadjaran University with the ethical exemption number: 955/UN6.KEP/EC/2021.

Result

The number of students for the second year of the 2019/2020 academic year is 264 students. In (Table 1), the average score for the oral exam is higher than the average score for the multiple-choice exam. There are different characteristics that affect each exam.

Linear correlation between multiple-choice test scores and oral test scores, based on statistical analysis, shows a large correlation coefficient (R-value) of 0.307 and a p-value of 0.000 means that there is a significant relationship between multiple-choice test scores and oral test scores for the second year of the Padjadjaran University Medical Degree Program for the Academic Year of 2019/2020.

Table 1. The average distribution of multiple-choice scores with oral test scores for the Second Year of the Bachelor of Medicine Program at Padjadjaran University Academic Year 2019/2020

Statistics	Multiple Choice	Scores Oral Examination Scores
Mean	66.47	81.84
Min	23.00	24.00
Max	85.00	100.00

Discussion

Data taken from 264 students showed that the average score for the oral exam was 81.84, so it was higher than the multiple-choice test score which had an average score of 66.47. According to research conducted by (Funk and Dickson 2011), multiple-choice exams tend to be easier and provide opportunities for examinees to predict answers better. Multiple-choice exams can allow the individual taking the exam to apply the best strategies for passing the exam (Funk and Dickson 2011). Unlike the oral exam, the focus

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in the assessment of the oral exam lies in the individual's ability to understand the ideas and concepts expressed in the form of words. Oral exams also test the individual's ability to solve problems provided in the form of words. The oral exam not only tests the individual's ability to think but also tests the individual's ability to process vocabulary and master the ability to speak confidently (Dewi et al. 2016; Theobold 2021). The minimum scores differ considerably between the multiple-choice exam and the oral exam due to the difficulty of the questions given between the two exams (Elsalem et al. 2021).

The quite different characteristics of the two exams indicate that it is possible for individuals to get different scores on the two exams. The oral exam shows higher results because the oral exam prioritizes student understanding and problem-solving abilities by students (Dewi et al. 2016). The oral exam is different from the multiple-choice exam in which the answers are absolute and cannot be contested. The answers given by students in multiple-choice exams must be correct in order to achieve a perfect score. The lower multiple-choice exams can be caused by the formulation of questions that are not good enough in terms of grammar and sentence structure, thereby increasing students' confusion and questions that are too broad so that students are confused in determining the material to be studied (Alneklawi 2022). Multiple-choice exams based on several studies cause increased anxiety and stress because the questions given are more difficult and it takes more time and effort to prepare for online exams when compared to offline exams (Elsalem et al. 2021). In contrast to the oral exam, which prioritizes the understanding and suitability of the answers given by students. This explains the average score on the oral exam which is higher than the average score on the multiple-choice exam (Suseno 2017).

Based on the correlation coefficient test, the results obtained in this study were 0.307. When converted to a table of correlation coefficients, this figure indicates that there is a weak correlation. The weak correlation between the mean scores of multiple-choice and oral examinations for second-year medical students could be due to the different forms of evaluation carried out. One of the weak correlations is caused by the large difference between the mean of the two exams studied. During the COVID-19 pandemic, multiple-choice and oral exams conducted online showed differences in scores due to differences in how they were assessed (Fatima et al. 2021).

The low correlation between multiple-choice and oral examination assessments for medical students during the COVID-19 pandemic is also due to the difficult medical exam system. Nasir et al. (2014) showed that one type of oral exam conducted by medical students, namely SOCA or Structured Objective Case Analysis is a good assessment method to assess the knowledge and abilities of medical students. SOCA is also believed by students to be used as a formative and summative assessment and can be combined with other types of exams, one of which is multiple choice (Nasir et al. 2014). During the pandemic, students need to make adjustments in making assessments. The unfamiliarity of students in understanding the implementation of online exams also affects the assessment of oral exams that are carried out synchronously. The objectivity of the oral

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


exam assessment is reduced due to the limited number of lecturers who assess student answers. In addition, students' attempts to commit dishonest acts during oral exams also increase scores on these types of exams (Elsalem et al. 2021). Another study by Makkiyah, Susatiningsih, and Nurrizka (2021) showed that multiple-choice exams conducted by medical students were reliable enough to assess students' abilities, but multiple-choice exams had some drawbacks such as being able to only repeat certain brief information, without students understanding the application of their knowledge (Makkiyah, Susatiningsih, and Nurrizka 2021).

Thus, it can be concluded that the average multiple-choice test scores have a weak correlation with the oral test scores of second-year medical students. According to research by Grainger et al. (2018), one way to improve students' ability to answer multiple-choice exams for medical students is to instruct students to practice writing multiple-choice questions and answer them individually. Students who are trained to write multiple choice questions can improve their higher-order thinking skills better. If a student's multiple-choice test score average increases to equal the average oral test score, the correlation between the two test scores may increase (Grainger et al. 2018).

Conclusion

There is a weak correlation in multiple-choice test scores with oral scores of second-year medical students of the Padjadjaran University Medical Degree Program for the Academic Year of 2019/2020. Suggestions for further research are that research is carried out on several other learning blocks in the next semester and academic year. Both types of exams need to be carried out to evaluate students' abilities optimally.

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