

Cirebon Annual Multidisciplinary International Conference (CAMIC 2024)

# CRITICAL THINKING SKILLS LEVEL OF MEDICAL STUDENTS: STUDY IN PRIVATE FACULTY OF MEDICINE

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**Abstract**—Critical thinking skill is important for college graduates, especially in applying science to their field of expertise. Therefore, every higher education institution must facilitate the learning of critical thinking skills. In medical education, critical thinking skill include in one of primary competence which is “self-awareness and life-long learning”, which has to be achieved by every medical student. Measurement of critical thinking skill in medical students is important, therefore this study aimed to describe the critical thinking level of medical students at Universitas Swadaya Gunung Jati. This was a descriptive observational study with cross-sectional design. The sample size was 239 medical faculty students at Universitas Swadaya Gunung Jati. Data collection used questionnaire instrument which has been validated. High level of critical thinking skill was dominated by the 2017 batch, both in measuring critical thinking skills level of knowledge, understanding, application, and analysis. Batch of 2018 has good critical thinking skill in the application level. Batch of 2019 has good critical thinking skill in the analysis level. Batch of 2020 has good critical thinking skill in the knowledge level. Medical students at Universitas Swadaya Gunung Jati have good level of critical thinking skills.

**Keywords:** critical thinking, medical students, soft skills, faculty of medicine.

## I. INTRODUCTION

Developing critical thinking is a crucial ability for effectively addressing the difficulties of the present day. In addition to critical thinking, there are numerous vital skills,

such as problem-solving skills, creativity and innovation skills, information and communications technology literacy, contextual learning skills, and media literacy. The world today demands human resources that are capable of global competitiveness (1). Not only in terms of education, but also in all aspects of life. So it requires every individual to be able to think critically in dealing with various situations (2).

Critical thinking skills needs to be learned in formal education. As in undergraduate programs, where students are expected to achieve this skill for applying their science in real life context. This was in accordance with the regulation from the Minister of Education and Culture of Republic of Indonesia, concerning national higher education standards. These standards must be fulfilled by every higher education in the country to achieve the goals of national education, which one of it is to produce graduates who have critical thinking skills (3). Therefore, critical thinking is important for every student, including medical faculty students.

In the career development, lifelong learning is important for readiness in mastering competencies needed in the future (4). This also applied to the learning process in higher education, especially for medical faculty students. Medical education is a career that necessitates ongoing learning throughout one's lifetime, sometimes known as lifelong learning. Developing proficient critical thinking skills is crucial in medical education to foster the acquisition of good autonomous learning habits. The learning process in medical education necessitates active engagement in order to cultivate abilities at an advanced cognitive level (5).

While the importance of critical thinking abilities is well recognized, there is limited information regarding how to enhance or evaluate these skills. Therefore, the elements that

contribute to the development of critical thinking skills remain uncertain. Hence, the objective of this study is to ascertain the extent of critical thinking abilities among undergraduate medical students, spanning from their first year to their fourth year.

## II. METHOD

This study using descriptive observational study with cross-sectional design. The sample size was 239 medical faculty students at Universitas Swadaya Gunung Jati. Sample was determined using Stratified Random Sampling Method. Selection of sample used inclusion and exclusion criteria. The students was from 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year. Students which has not been active in study or dropped out from their own batch, were not be included in this study. The data collection used questionnaire instrument which has been validated. Questionnaire was consisting of 21 questions which analyze the level of students critical thinking skills. It was 5 questions of knowledge, 5 questions of understanding, 6 questions of application, and 5 questions of analysis. This study was approved by Research Ethics Committee in faculty of medicine Universitas Swadaya Gunung Jati.

## III. RESULTS AND DISCUSSION

In this study, there were 239 students participated as research samples, 25 students from the 4<sup>th</sup> year (class 2017), 66 students from 3<sup>rd</sup> year (class 2018), 65 students from 2<sup>nd</sup> year (class 2019), and 83 students from 1<sup>st</sup> year (class 2020) medical students in Universitas Swadaya Gunung Jati, who met the criteria. The distribution by gender was 169 women (70,7%) and 70 men (29,3%).

The validity test was carried out to determine the suitability of each questionnaire statement item used by researchers in measuring research data from respondents. The correlation technique used to test the validity of statement items in this research was Pearson Product Moment. The correlation coefficient value of the statement items being tested was greater than the r-table of 0.339, it could be concluded that the statement items were valid in construct. From the results of questionnaire processing, it was found that all statement items had validity coefficient greater than the r-table, so that these items were suitable for use as measuring tools in research. Reliability testing was carried out to see whether the questionnaire had consistency if measurements were carried out using the questionnaire repeatedly, then analyzed using the Alpha-Cronbach method. The results of the reliability test are 0.791. Answer 5 or Very Capable is included in the high category, 4 or Capable is included in the Good category, 3 or Undecided is included in the Fair category, 2 or Not Capable is included in the Less category and 1 or Not Capable is included in the Low category.

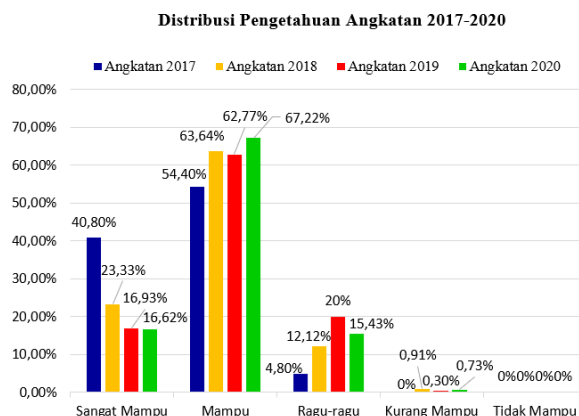


FIGURE 1. DISTRIBUTION KNOWLEDGE LEVEL OF CRITICAL THINKING SKILLS.

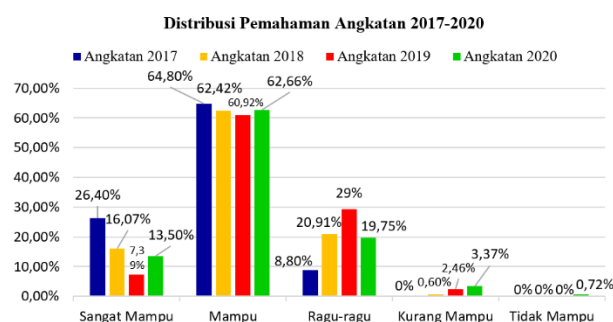


FIGURE 2. DISTRIBUTION UNDERSTANDING LEVEL OF CRITICAL THINKING SKILLS.

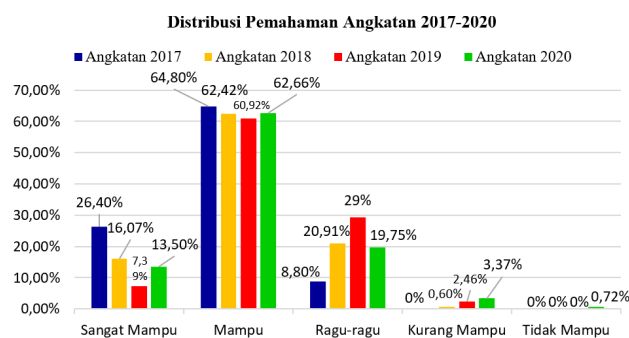


FIGURE 3. DISTRIBUTION APPLICATION LEVEL OF CRITICAL THINKING SKILLS.

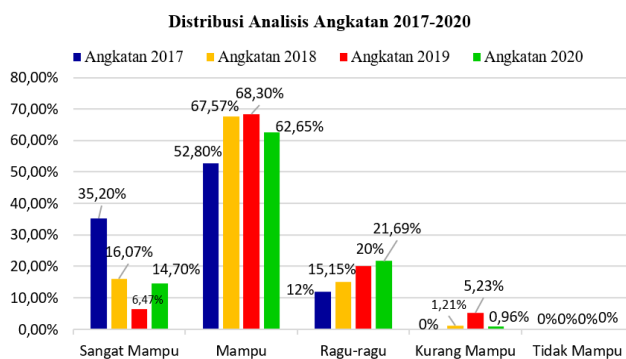


FIGURE 4. DISTRIBUTION APPLICATION LEVEL OF CRITICAL THINKING SKILLS.

Of all levels 1-4, namely the classes of 2017, 2018, 2019 and 2020, the description of the high level of critical thinking was dominated by the class of 2017 both in measuring critical thinking skills at the level of knowledge, understanding, application and analysis. The class of 2017 also has a good description of the level of critical thinking at the level of understanding. This can happen because the class of 2017 was the only class that had more experience in the entire process of learning activities when compared to the class of 2018, 2019 and the class of 2020.

Class of 2018, 2019 and 2020 have different levels of critical thinking. Although more experience gained was one of the factors that can improve critical thinking skills, it was not a reference that the more experience gained, the higher an individual's level of critical thinking will be. This could be influenced by several factors, such as physical and psychological aspects. One of the physiological aspects was the general physical condition and energy which can indicate the level of physical fitness which can influence students' enthusiasm and intensity in participating in learning activities. Psychological aspects can influence the quantity and quality of what students gain from each lesson, such as student intelligence, student attitudes, student talents, interests and student motivation (15). Personal factors can also have an influence, such as lack of knowledge due to not taking the learning seriously. and systematic (1).

The class of 2018 demonstrated a commendable level of critical thinking at the application level, the class of 2019 exhibited a commendable level of critical thinking at the analysis level, and the class of 2020 showcased a commendable level of critical thinking at the knowledge level. Another study suggested that a lack of exposure to activities involving critical thinking skills may be a contributing factor to students' limited development of such

skills. This is because students often encounter activities that emphasise memorization and rely solely on memory, which can negatively impact their learning outcomes. The class of 2017 had a strong aptitude for critical thinking, as seen by their high levels of critical thinking abilities in measuring knowledge, comprehension, application, and analysis. They are accustomed to engaging in activities that need critical thinking skills.

The achievement of students' critical thinking skills could also be influenced by the environment and learning facilities which can influence students in their learning process. The class of 2020 was the only class that had never carried out face-to-face learning activities due to the Covid19 pandemic which requires them to take part in online learning, when the research was being conducted. Choosing a learning method was one of the most important elements in the learning process, where you have to know what learning method was appropriate to use by looking at the situation and conditions so that the learning process can be more effective.

Specially for the class of 2020 who had never carried out direct face-to-face learning activities, when the research was being conducted. Each learning method which being used certainly has its own advantages and disadvantages, so it would be better if you could combine one method with another. (15) All of these components are included in the educational process which aims to produce quality medical faculty students. by paying attention to the educational components. (16)

#### IV. CONCLUSIONS

Medical faculty students at Universitas Swadaya Gunung Jati, Cirebon, had good level of critical thinking. There were differences in the level of critical thinking of medical faculty students at Universitas Swadaya Gunung Jati, Cirebon. The class of 2017 had a high level of critical thinking at the level of knowledge, understanding, application and analysis. The Class of 2018 had a good level of critical thinking at the application level. The Class of 2019 had a good level of critical thinking at the analytical level. The Class of 2020 had a good level of critical thinking at the knowledge level.

To enhance the next research, you may conduct a comparable study with a larger sample size or a different study design. Additionally, you might investigate additional aspects that may contribute to the improved development of critical thinking abilities. These assessments could provide valuable feedback to the curriculum regarding the development of effective ways for fostering critical thinking skills in students.

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