ORIGINAL ARTICLE

Correlation Between Pre-clinical Medical Students' Self-adjustment During Hybrid Learning and Students' Test Scores

Francisca A Tjakradidjaja[1], Erfira Fauzi[2], Ahmad Azwar Habibi[3], Auliyani Andam Suri[4]

[1] Department of Clinical Nutrition, Faculty of Medicine Universitas Islam Negeri Syarif Hidayatullah, Jalan Kertamukti No. 5, Banten, Indonesia, 15412
[2] Department of Ophthalmology, Faculty of Medicine Universitas Islam Negeri Syarif Hidayatullah, Jalan Kertamukti No. 5, Banten, Indonesia, 15412
[3] Department of Anatomy, Faculty of Medicine Universitas Islam Negeri Syarif Hidayatullah, Jalan Kertamukti No. 5, Banten, Indonesia, 15412
[4] Department of Physiology, Faculty of Medicine Universitas Islam Negeri Syarif Hidayatullah, Jalan Kertamukti No. 5, Banten, Indonesia, 15412

ABSTRACT

Introduction: The more controlled Covid-19 pandemic conditions had made face-to-face learning activities possible with emphasizes the implementation of health protocol. Students needed to adjust to the new learning method transition, which was originally a fully online learning, to a hybrid learning. This condition is likely to be correlated to student learning outcomes. The study aims to determine the correlation between students' self-adjustment during hybrid learning and students' test scores. **Methods:** This research was a correlation study. Participants were the second-year pre-clinical students who underwent the hybrid learning for the first time. Self-adjustment was measured using a self-developed questionnaire by the investigators. The instrument was a YES or NO questionnaire consisting of 23 questions. Learning outcomes were measured based on summative and practical test scores. **Results:** Eighty-eight participants had completed the data (response rate 79%). Participants consist of 18 males and 70 females. Most of them were in the range of 15-19 years of age. Majority of the student was in good self-adjustment (55; 62.5%). Median self-adjustment score was 16 (range:2-23). The average score of the summative and practical exams were 58± 8.1 and 61±13.1, respectively. There was no significant positive correlation between self-adjustment and summative test (r=0.076; p=0,482). There was no significant positive correlation between self-adjustment and practical test (r=0,044; p=0.683). **Conclusion:** Most of students have good self-adjustment to this learning method transition. Therefore, it has no impact on test scores. The institution needs to pay more attention to the students who have adapting difficulties.

Keywords: Self-adjustment, Blended learning, Medical education, Online learning

Corresponding Author:
Francisca A Tjakradidjaja, PhD
Email: francisca.tjakradidjaja@uinjkt.ac.id
Tel: +62 2174716718

INTRODUCTION

Currently, the world is in a state of a COVID-19 pandemic. The disease can spread quickly between humans. This epidemic had led to extreme policy changes in various fields, such as health, economy and education. To break the distribution chain in education, the government had determined that schools in Indonesia were closed and started implementing online learning to prevent the spread of COVID-19. This policy made all educational institutions change the learning method, originally provided face-to-face, requiring lecturers and students to do online learning. Online learning is a conventional teaching and learning activity applied to a digital format via the internet (1).

Throughout the time and along with a vaccination program, the incidence of COVID-19 began to be in control. This makes the government stipulate the implementation of limited face-to-face learning. The recommended capacity is only 50% of students. So, the university establishes a policy of teaching and learning with a hybrid learning or combining offline and online learning systems. Hybrid or blended learning aims to improve the lack of e-learning methods and support conventional face-to-face learning methods (2). Hybrid learning emphasizes a learning method that occurs face-to-face in the classroom and takes place outside the classroom through online media. This method is positively impacted the extent of student academic motivation, whereas learning solely online did not cause an amendment within the level of motivation (3). Responding to these changing conditions, students need to adjust themselves.

Self-adjustment is an individual's psychological process

in managing or overcoming the demands and challenges of daily life. The adjustment process is involved in aspects of the individual's personality in interacting with his inner and outer environment. Failure to adapt will have an impact on mental health conditions. Meanwhile, success in the adjustment process will foster resilience in a person (4). The student learning process will run well if students can adjust conditions from being fully online to being a hybrid learning. Other adjustments that must be faced are adjusting to new habits that apply health protocols. They must be able to divide their time well between online and offline activities. They must also adjust to the new place far from their families. The things mentioned above can be related to the achievement of learning outcomes. As it is known, learning achievement as measured by examination is a benchmark for implementing education. Several studies show that self-adjustment correlates with student academic achievement (5,6). The Brain and Behavior module was the first module in that students used a hybrid learning. The purpose of this study was to assess the correlation of students' adjustment conditions to hybrid learning and achievement of grades in the module.

MATERIALS AND METHODS

Participants
The participants in this study were the second-year pre-clinical student who underwent the hybrid learning for the first time at the Faculty of Medicine, UIN Syarif Hidayatullah, Jakarta. A nonprobability convenience sample was used.

Design
This study used a quantitative approach by survey research. A descriptive-analytic study was conducted to analyze the correlation of two variables.

Instruments
Self-adjustment was measured using a self-developed questionnaire by the investigators that was arranged based on the aspects of adjustment (7). Self-adjustment covers personal, social, and academic aspects. The instrument was a YES or NO questionnaire consisting of 23 questions. The questionnaire has been validated, with a Cronbach's alpha coefficient was 0.813. A link to the survey was created through Gform and sent out to the students via students' unions. The highest possible score was 23 and the lowest possible score was zero. The self-adjustment criteria were good if the score was greater than 15, fair if it was between 7 and 15, and poor if it was less than seven.Learning outcomes were measured based on summative MCQ test scores and practical test scores. The questionnaire has been validated.

Statistical analysis
Descriptive statistics and correlations between variables were computed to answer the research questions of this study. Data were analysed by using SPSS version 25 software. To determine the normality of the data, the Kolmogorov-Smirnov test was used. The Spearman correlation coefficient was applied to determine the relationship between the variables.

Ethical consideration
The research project was carried out with the following ethical aspects: data confidentiality, informed consent, voluntary participation, and the use of the data collected only for research purposes. Participants were informed about the project's goals before giving their consent. The Ethics Committee Faculty of Medicine UIN Syarif Hidayatullah, Jakarta approved the study.

RESULTS

Eighty-eight participants had completed the data (response rate 79%). Table I shows the characteristic of participants. Participants were dominated by females (79.5%). Most of them were in the range of 15-19 years of age. The Grade Point Average (GPA) was mostly in the 2.75-3.49 category. The distance between student residence and campus was mostly less than 1 km.

Self-adjustment score data were not normally distributed, but the summative and practical exams were normally distributed. The median self-adjustment score was 16 (range:2-23). More than half of the students were in good self-adjustment and only two in poor self-adjustment. The data are shown in Table II.

The average scores of the summative and practical exams were 58±8.1 and 61±13.1, respectively. Table III shows the category of summative and practical scores. In summative and practicum scores, most of the students were in the poor category. The percentage were 58% in summative scores and 43% in practical scores. Spearman's test performed on the data shows no significant positive correlation between self-adjustment and summative test (r=0.076; p=0,482), and there was no significant positive correlation between self-adjustment and practical test (r=0,044; p=0.683).

DISCUSSION

Self-adjustment is a process to find a meeting point between self-conditions and environmental demands. It is a dynamic process. Humans are always required to adapt to their environment in all aspects: physically, mentally and socially. Life itself will naturally encourage humans to adapt constantly. Adjustment is obtained from the learning process and does not happen instantly. It takes time, maturity, and the ability of an individual to deal with the demands from within and outside themselves. As long as humans live, there will be a constant need to change themselves to remain in accordance with their environment and accepted by their environment.

Table I: Descriptive statistics of students' characteristics.

Variables	n(%)
Gender	
Male	18 (20,5%)
Female	70 (79,5%)
Age (years)	
15-19	65 (73,9%)
20-25	23 (26,1%)
25-30	
Student residence	
Boarding House	46 (52,3%)
Dormitory	8 (9,1%)
Rent House	-
Parent's House	32 (26,4%)
Sibling's House	2 (2,3%)
Distance between student residence and campus	
< 1km	42 (47,7%)
1-3 km	15 (17,0%)
4-6 km	6 (6,8%)
7-9 km	5 (5,7%)
≥10km	20 (22,7%)
The Grade Point Average (GPA)	
3,50-4,00	6 (6,8%)
2,75-3,49	40 (45,5%)
2,00-2,75	34 (38,6%)
<2,00	8 (9,1%)

Table II: The frequency and percentage of students' self-adjustment.

Category	Frequency	Percentage
Good	54	61.4
Pretty good	32	36.4
Poor	2	2.3
Total	88	100

Table III: The frequency and percentage summative and practical test

Variables	Frequency	Percentage
Summative test		
Very Good	0	0
Good	9	10
Pretty good	28	32
Poor	51	58
Total	88	100
Practical test		
Very Good	8	9
Good	20	23
Pretty good	22	25
Poor	38	43
Total	88	100

In this study, the majority of students had good self-adjustment skills in dealing with the transition of learning methods from fully online to hybrid learning. The wide self-adjustment scores indicate that each person's self-adjustment is significantly varied. Everyone has a different time and method to adjust. The majority of the participants were females, but from previous studies it was found that there was no relationship between gender and the self-adjustment process (6) The participants ranged in age from late teens to early adulthood. At that time, their psychological state was one of increased self-assurance and pressure tolerance, allowing them to adjust and fit in with their surroundings in order to accept and be accepted (Scales 8). Hybrid learning uses online activities as much as 40-80% if the blended activity is less than 40%, and vice versa (9). Hybrid learning at Faculty of Medicine UIN Syarif Hidayatullah Jakarta uses 70% online activity. Learning activities carried out offline are problem-based learning group tutorials, practicum, and laboratory skills learning. Most of the lectures are conducted online. It can be said that the percentage of offline activities is not too many. Therefore, students do not face significant difficulties. They can still adjust well. Hybrid learning during the pandemic are more favorable in terms of student academic motivation. This situation was positively associated with satisfaction with academic life and college belongingness (2). A study performed by Fitriyana, (10) found that hybrid learning significantly influences students' self-efficacy and self-regulated learning. It is known that there was a positive and significant relationship between the variables of academic self-efficacy and self-adjustment (11). Self-regulated learning strategies, self-efficacy, and test anxiety were predictors of self-adjustment. The strongest predictor was metacognitive self-regulation strategies (12). Currently, this has not been explored. In the future, it is necessary to investigate further.

In a successful hybrid learning, students should be the center of the learning community, and all other activities should be designed around them. To plan effective hybrid learning, the following points must be considered policies and procedures: what to do before the first meeting; how teaching activities should be divided into face-to-face and online formats; management of online activities, especially live chat; classroom participation policies (face-to-face and online); assessments and lessons learned (13). There are many factors to consider when designing and deploying a hybrid learning. However, this also can be robbed in terms of the student's learning experience. The implementation of this hybrid learning is an adjustment during a pandemic. The processes of teaching, learning, and interactions between teachers and students can all be altered via hybrid learning. The method's flexibility and attention on students' learning needs, as well as its influence on boosting self-learning and problem-solving skills, are some of its key benefits. It also aligns with students' interests in digital media. On the other hand, there were certain limitations, including

a lack of institutionalization of the hybrid learning culture and insufficient technical, organizational, and human resource infrastructures at the university for students and teachers (14). In the area of health education, hybrid learning consistently generated larger knowledge outputs than traditional learning (15). Considering the good adjustment of students, this learning method can be continued and can even be applied not only during this pandemic.

As we can see, the average of summative exams and practical exams are not good enough. The achievement score does not show an optimal number. Several factors contribute to the exam, namely content of the test, difficulty level of the test, gender, age, intellectual ability, faculty of study, parent, social, economic status, residential area, medium of schooling, tuition, study hour and accommodation (16). Assessments are conducted frequently to measure post-program effectiveness; the curriculum and content of the course are in preparation. Sometimes, outcomes-based education systems focus only on students getting higher test scores. Publication from Scott (17) shows that evaluation does not always stimulate learning. It is important to examine how our evaluation protocol itself can be used to stimulate learning. After all, tests are known to support learning by requiring retrieving information. Although a meta-analysis study shows that hybrid learning paves the way for academic achievement (18), it has been proven in this study. In line with Fitriyana (10), hybrid learning did not significantly influence students' achievement. In the future, it is necessary to study more deeply related factors related to test scores and to compare the current score of hybrid, fully online, and full-face to face learning.

The correlation between self-adjustment and test scores, both summative exams and practical exams, showed no significant relationship. The value of r looks very small. This shows that the relationship between the two variables was very weak. Learning outcomes measured through exam tests were related to various factors. Self-adjustment maybe have only a very small role. But when considering the results of r, which have a positive direction, the relationship between the two variables is in the same direction. The higher the self-adjustment score, the higher the achievement of test scores. But in this study, good self-adjustment from students is not followed significantly by good test results.

These results were contrary to previous studies (5,6). Previous studies show that self-adjustment was correlated significantly with student academic achievement. Socially, emotionally, and academically less resilient students face various interpersonal problems and problems such as lack of motivation, depression, anxiety, and depression, which lead to academic failure among students. This inconsistency may be attributed to the social and cultural differences of the students in different societies. This phenomenon occurs possibly because

the measuring instruments used were different. The researchers used a self-developed measuring instrument based on existing theory in this study. Broadly speaking, the theoretical basis used is not much different, covering social, personal, and academic aspects. In addition, different research subjects in this study were medical students, while the previous study used high school students as subjects. Medical students are older than high school students, so their psychological maturity levels are likely to be better and easier to adjust. To the best of the researcher's knowledge, no research has been conducted on the relationship between self-adjustment hybrid learning and academic achievement in medical students. This is the first study to do so.

CONCLUSION

Based on the research results, it can be concluded that the profile of students' self-adjustment during the hybrid learning period was good. There was no significant correlation between students' self-adjustment during the hybrid learning and the test score. The test scores were below the good category. In the future, the institution needs to consider using hybrid learning as part of the curriculum. Further research is needed to explore the factors of adjustment in medical students in terms of psychosocial aspects. Education managers need to consider planning student assessments to be valid and reliable. In addition, further research is needed to identify the reasons for achieving non-optimal test scores.

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