

## Conference Paper

# The Impact of Learning Environment, Age, Gender, and Duration of Clinical Rotation to Quality of Life of Medical Students

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## Abstract

Medical students in the clinical clerkship face a tight schedule and burden task that can cause "burn out". If neglected, it will decline their quality of life. With a good quality of life, a doctor will be able to handle patients optimally. The aim of this study was to determine how the learning environment, age, gender and length of clinical rotation affected the quality of life of medical students in the clerkship stage. An analytic observational study with a cross-sectional approach was conducted at the main teaching hospital in Surakarta, Indonesia. The population was medical students in the clerkship stage. 178 subjects were carried out by cluster sampling. The learning environment was assessed with PHEEM questionnaire and the quality of life was evaluated with WHOQOL BREF questionnaire. The results of data analysis using multiple linear regression showed that each increment in a score of the learning environment would improve the quality of life by 0.13, which is statistically significant ( $p=0.002$ ). Age, gender, and clinical rotation duration did not significantly ( $p=0,056$ ;  $p=0.174$ ;  $p=0.087$ ) impact the quality of life. The learning environment, age, gender and clinical rotation duration together affect the quality of life of the clinical clerkship stage students by 7.8%. The conclusion is that the learning environment influences the quality of life.

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## 1. Background

Quality of life is one measurement of someone's health status, which is influenced by culture, value system and environment. Stress occasions and emotional-related problems have increased in medical students. Previous research states that there is a decrease in the quality of life in medical students in the form of sleep difficulties, fatigue, anxiety and depression. The decline in quality of life has an impact on physical and physiological disorders [1]. Compared to adolescents of his age who did not study in medical school, medical students had a worse quality of life [2].

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Previous research showed that to be able to function well as a student or as a health worker after graduation, medical students must have a good quality of life. Environment as a factor that influences the quality of life of students can be a source of stress that affects a person's quality of life. The environment referred to in this case is primarily a learning environment. Medical students state that their experience while studying at the Faculty of Medicine influences the quality of life [3]. Efforts are needed to help medical students undergo a learning environment that may be different from before. So that, quality of life will be constantly good [1].

Medical Faculty students have a solid schedule of learning activities, as well as a high load of academic tasks. Students of the Faculty of Medicine will study in two study programs in sequence to become doctors, namely the Medical Study Program followed by Clinical Clerkship Stage. In the clinical clerkship stage, students take lessons in clinical rotation with students-centered learning principles. Learning in clinical clerkship stage involves patients directly, and students will be involved in patient care directly under the supervision of lecturers. The clinical clerkship stage in general is more unstructured in learning activities compared to medical study programs. In addition to arbitrary schedule, the demand of high responsibilities for dealing with patients directly is a source of stress that is often faced by students.

Research on the quality of life of medical students, especially in Indonesia, is still very inadequate. Considering the importance to maintain the quality of life of medical students, this research needs to be done.

## 2. Methods

This study was an analytic observational study with a cross sectional approach, conducted at the main teaching hospital of the Faculty of Medicine, Universitas Sebelas Maret in March 2018. The study population was students of clinical clerkship stage in Faculty of Medicine, Universitas Sebelas Maret with a total of 330 students. Inclusion criteria are students who are registered as active students at the clinical clerkship stage and have undergone half learning in each department, so that students can assess the learning environment in the current department. Exclusion criteria are students who are undergoing a stage in a network hospital outside the city, and students who have entered the integration stage.

Samples were calculated with Openepi software, and we obtained 178 samples. The sampling technique is carried out proportionally based on the department in the clinical clerkship stage, which is as many as 18 departments. This proportional sampling is done

to adjust the number of students that vary every department. Then, the selection of members in each department of the sample is done randomly (Table 1).

The learning environment was assessed by using the PHEEM questionnaire while the quality of life was assessed with WHOQOL BREF. The PHEEM and WHOQOL BREF questionnaires were tested for validity and reliability. There were 40 items in the PHEEM questionnaire, however three of the items were invalid, so they were excluded from the instrument. The total items were 37 items with cronbach alpha of 0.95, the lowest total item correlation was 0.303. In WHOQOL BREF the results of the validity and reliability of alpha cronbach were 0.91, total item correlation was 0.204, and all items were valid and reliable.

The obtained data were tested for normality with the Kolmogorov Smirnov test. Kolmogorov Smirnov test resulted in the quality of life of  $p= 0.657$  and for the learning environment of  $p= 0.768$ , so that the normal distribution of data can be stated and meet the rules for using parametric tests. And statistical analysis was performed with multiple linear regression.

### 3. Results

From 178 samples, only 170 respondents returned the questionnaire, so that 170 samples were used for data analysis (Table 2). Characteristics of subjects based on age and rotation duration in months is shown in Table 3.

Each increment in one learning environment score will improve quality of life by 0.13, statistically significant ( $p 0.002$ ; CI 0.05 to 0.22). Any increment in one year of age will improve the quality of life by 2.01, not statistically significant ( $p 0.056$ ; CI -0.05 to 4.06). Male's score was higher in quality of life 2.39 compared to female's, but not statistically significant ( $p 0.174$ ; CI -1.07 to 5.86). Each one-month increment in clinical clerkship stage rotation will reduce the quality of life by 0.37, but not statistically significant ( $p 0.087$ ; CI -0.79 to 0.05) (Table 4).

### 4. Discussions

The results of this study stated that each increment in a score of the learning environment would improve the quality of life by 0.13, statistically significant ( $p 0.002$ ; CI 0.05 to 0.22). Clinical stage education is very likely to cause stress on students, because at that stage students are faced directly with the patient, having responsibility for being directly involved in patient care. Other research stated that the source of stress in the

TABLE 1: Proportion of samples in each department.

No	Department	Number of sample (student)
1	Internal Medicine	17
2	Surgery	17
3	Gynaecological Obstetrics	17
4	Paediatrics	17
5	Neurology	8
6	Medical rehabilitation	8
7	Dermatovenereology	8
8	Ophthalmology	8
9	Otolaryngology	8
10	Pharmacy	8
11	Public Health	8
12	Psychiatry	8
13	Dentistry	8
14	Cardiology	8
15	Radiology	8
16	Forensics	8
17	Pulmonology	8
18	Anaesthesia	8

TABLE 2: Characteristics of subjects.

No	Characteristics	n	Percentage
1	Gender		
	Female	112	65.9
	Male	58	34.1
2	Marital status		
	Single	161	94.7
	Married	9	5.3
3	Address		
	Dormitory	114	67.1
	Et cetera	1	2.4
	Family's house	1	0.6
	Own house (without parents)	1	0.6
	With parents	48	28.2
	With husband/wife	2	1.2
4	Batch (entering medical studies)		
	2009-2010	4	2.4
	2011	47	27.6
	2013	119	70

Source: primary research data in 2018

TABLE 3: Characteristics of subjects: age and rotation duration in months.

No	Characteristics	Minimum	Maximum	Average	Deviation Standard
1	Age	20	25	22.5	0.922
2	Length of rotation (month)	2	24	10.15	4.46

Source: primary data of research results

TABLE 4: Results of multiple linear regression analysis of the influence within the learning environment, age, gender and length of rotation that have been lived with the quality of life.

Variable	β (regression coefficient)	p	CI 95 %	
			Lower limit	Upper limit
Constant	37.73			
Learning environment	0.13	0.002	0.05	0.22
Age (year)	2.01	0.056	-0.05	4.06
Gender (male)	2.39	0.174	-1.07	5.86
Length of rotation (month)	-0.37	0.087	-0.79	0.05
N observation	170			
Adjusted R2	0.78			
P	0.002			

Source: primary data of research results

clinical stage students is clinical lecturers who on average act violently towards students [4]. Research conducted by Henning et al on fourth-year medical students also stated the same thing about quality of life. 100% of fourth year students experience sleep disturbances, anxiety and uncertainty. These students are students who are in the medical studies or clinical clerkship stage [5].

Students in clinical clerkship stage state that their health and quality of life are influenced by the difficulties encountered in clinical learning activities [6]. Education in the clinical clerkship stage needs to get attention because many students have a poor quality of life [7]. The learning environment is very important in supporting the learning process. The more positive the learning environment, the better the learning outcomes achieved by students. A good learning environment will spur student learning reasons, also what and how students will learn, so students will have high independence in learning [8]. In clinical clerkship stage (the stage of the medical profession), a good learning environment will trigger the development of lifelong learning abilities, and the development of attitude [9]. Medical students' perceptions of the learning environment can influence academic behavior and development. Previous research said in a PBL curriculum, the thing about the learning environment that needs attention according to students is that the curriculum burden is too big and non-adequate support for students

[10]. At the clinical clerkship stage, the learning environment has an influence on the development of professionalism and lifelong learning. Some factors that influence this include age and gender [9]. Stress that comes from the learning environment can trigger the weakness of the memory of medical students [4].

Another thing that affects the quality of life of medical students is the quality of lecturers, curriculum, unhealthy lifestyles which include eating habits, sleep patterns and physical activity [3]. Quality of life is important in medical education. Medical Education should pay attention to the quality of life of its students [11]. A good relationship with family, friends and lecturers is one of the things that can improve the quality of life of medical students [3]. A good curriculum is also expected to help students to get a good quality of life [12].

Any increment in one year of age will improve the quality of life by 2.01, not statistically significant ( $p$  0.056; CI -0.05 to 4.06). Research in Kolkata stated that there is a relationship between age, having or not having a hobby and illness towards the occurrence of depression in medical students [13]. In this study, the age range of research subjects was from 20 to 25, so that with a not too wide age range this could not show a significant relationship between age and quality of life. Associated with the increasing length of medical education, according to research conducted in Tehran, increasing levels of education will cause the quality of life of medical students to decline [7].

Male's score was higher in quality of life 2.39 compared to female's, but not statistically significant ( $p$  0.174; CI -1.07 to 5.86). In contrast to Heidari et al's research on gender, female medical students have a better quality of life than males in the real of social life [7].

## 5. Conclusion

The learning environment influences the quality of life of students in the clinical clerkship stage. It is necessary to develop a learning environment that supports the quality of life of students in the doctoral profession stage, so that it will create doctors with good quality of life. The limitation of this study is that it has not measured many factors that can affect the quality of life of medical students, such as personality factors, lifestyle, family and others.

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