# The effect of academic stress and learning motivation of pre-service teachers in aerobics

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**Abstract**

The purpose of this study was to determine how much influence academic stress had on pre-service teachers' learning motivation. Mixed methods with a sequential explanatory design were the methods used in the study, while the sample used in this study amounted to 155 pre-service teachers obtained using random sampling from the Department of Sports Coaching Education in 2019-2020 from Padang State University. The instruments in this study include a pre-service teacher motivation questionnaire and academic stress observation sheets and semi-open interviews. The data analysis used was descriptive and inferential. The results of academic stress and motivation obtained good results. This is reinforced by the relationship between academic stress and motivation and there is an influence between the two, with a contribution of 53.2%. Based on the results of the study, it is recommended that pre-services need to be given more motivation from stakeholders related to sports to reduce pre-service academic stress.

Keywords: Academic stress, motivation, pre-service teacher.

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## 1. Introduction

The sports development system cannot be implemented in an instant way, especially 'management from the road', but it requires totality and commitment to develop sports in a systematic and supportive manner. Sports achievement is something that is visible and measurable, meaning that sports coaching is carried out with a scientific approach starting from talent scouting to the coaching process (Purdy, 1982; Stambulova & Wylleman, 2019). Sports achievements cannot be separated from science and technology. To achieve peak performance, it is necessary to support various fields and disciplines that are able to support these achievements. Achievement sports are sports that foster and develop athletes in a planned, tiered, and sustainable manner through competitions to obtain achievements with the support of sports science and technology. Sports achievements can be manifested if an athlete is able to develop skills and character (Kamid et al, 2021; Shavandina et al, 2020). These characters include discipline, high self-esteem, strong mentality and, of course, having the guts to be the best. Basically, sports achievements have a big impact on an area (city, district or country) which is a matter of pride or prestige so that it is appreciated by other regions, with political recognition, to the economic field (Martinez & Sanchez, 2021; Nurxonovna, 2021; Simbolon et al, 2021).

The systematic and planned development and scouting of sports talent is supported by human resources and good science to achieve the goal of sporting achievement. Achievement in sports coaching is carried out in accordance with the levels and levels achieved by athletes; this is carried out through massing, monitoring and developing athlete talent through agencies or through sports organisations (Hastie et al, 2017; Light & Harvey, 2017; Lyle, 2018). The low achievement of pre-service teacher sports may be caused by several factors, including the ability of lecturers to teach, selection of inappropriate methods and media, inadequate facilities and infrastructure, poor nutritional status of students, level of physical fitness that is not so good, a less conducive learning environment, low motivation to exercise and may also be due to low sports achievement (Aquilina, 2013; Haidar et al, 2018).

Student athletes on campus have a variety of assignments. Student athletes are required to be able to carry out their duties as students and athletes. In addition to having to practice diligently in order to excel in sports, student athletes are also required to pay attention to academic matters such as doing assignments, attending school lessons, taking exams and so on. This proves the statement that the burden of student athletes is greater than that of regular students in general (Fredickson & Petrides, 2008; Jonker, 2009). These burdens have the potential to cause academic stress, which is in line with the statement by Barseliet al. (2018) which states that academic stress can arise due to a busy schedule, competition and highly motivated pressure. There is research that proves that there is a correlation between achievement motivation and academic stress, where the correlation is negative, which means that the higher the achievement motivation, the lower the academic stress, on the other hand, if the achievement motivation is low, academic stress is high (Mulya & Indrawati, 2017).

Students who experience academic stress can be seen going through several symptoms. According to Azmy et al. (2017), these symptoms are in the form of physical reactions (headaches, sweaty palms, fast heart rate etc.), behavioural reactions (lie, truant, nervousness etc.), reaction to thought processes (difficulty in concentration, perfectionism, decreased achievement etc.) and emotional reactions (anxiety, irritability, dissatisfied and feeling neglected). These symptoms certainly have a negative impact on students who experience them. One of them will result in a low GPA (grade-point

average) of the pre-service. If the GPA of the pre-service is low, it will be difficult to get scholarships which will cause low motivation and increase the academic stress of pre-service teachers.

The symptoms of academic stress are certainly caused by several factors. The factors for the emergence of academic stress, according to Yusuf and Yusuf (2020), are self-efficacy, hardiness, optimism, achievement motivation and procrastination. Based on these factors, it can be seen that achievement motivation can affect academic stress. Achievement motivation requires individuals to improve their abilities in order to produce what the individual's goals are (Sagita et al., 2017). Achievement motivation also makes individuals have plans to achieve goals, make individuals work efficiently and individuals will be able to solve problems or obstacles they face easily (McClelland, 2009). According to Mulya and Indrawati (2017), achievement motivation can reduce academic stress. Achievement motivation is a physical condition that exists in students where it can encourage them to carry out certain activities so that the desired goals can be achieved (Mirdanda, 2018). Another opinion says that achievement motivation is an individual's need to meet the desired goals, these goals are realistic or can also be called the need for success (Singh & Jain, 2017). From some of these opinions, it can be concluded that achievement motivation is a person's encouragement or effort to achieve success. The strength of motivation can affect academic stress. According to McClelland (2009), the existence of achievement motivation can make students more aware of what will be achieved so that these students have plans or strategies in dealing with the risks that will be faced. Students can also think more positively that all academic assignments will later be useful for the future. This can reduce the pressure within students so as to reduce the potential for academic stress.

There are several studies that prove that there is a relationship between learning motivation and students' motor skills. Budiawan (2013); Ryska and Vestal (2004); and Subarjah (2016) explain that there is a significant positive relationship between achievement motivation and one's motor skills. Other studies were conducted by Tamara and Chris (2018), You (2018) and Putri et al. (2020), who found that the level of motor ability has a relationship with one's achievement. Based on several studies that have been mentioned, there is a gap, namely the existence of research that discusses learning motivation with motor skills that affect pre-service teacher achievement, especially in gymnastics courses. Therefore, the purpose of this study was to determine how big the impact of the influence of motor skills and motivation in an effort to improve pre-service teacher sports achievement.

## 2. Methodology

### 2.1 Research design

This study uses a mixed methods approach. According to Martens (2010), 'mixed methods can refer to the use of quantitative and qualitative data in answering research questions as well as being part of a larger research programme and designed as a complement to provide information related to different methodological approaches'. The type used is sequential explanatory. Sequential explanatory research is a research in which the initial data collection is quantitative, which is then followed by qualitative data, meaning that quantitative data are strengthened by qualitative data to be obtained (Creswell, 2012) on Academic stress and motivation for pre-service teacher sports achievement in aerobic.

### 2.2 Research subject

The population in this study were undergraduate programme students majoring in sports coaching education for the 2019–2020 academic year. Samples were taken by random sampling from

undergraduate programme students in the sports coaching education department for the 2019–2020 academic year, and as many as 155 participants were selected. Quantitative data were obtained from academic stress with observation sheets and a questionnaire on achievement motivation of pre-service teachers, followed by qualitative activities, namely conducting interviews with 20 pre-service teachers to strengthen the quantitative results.

### 2.3 Research instrument

In the first data collection process, because it uses a sequential explanation type, the first data obtained is quantitative data through academic stress observation sheets and motivation questionnaires for pre-service teacher learning achievement. The academic stress observation sheet was adapted by Tajari (2019), which has 23 valid statements with a Cronbach's alpha value of 0.73, and the motivation questionnaire (Roberts & Papaioannou, 2014) obtained 18 valid statements with a Cronbach's alpha value of 0.76, which uses a 4-point Likert-type scale, namely for positive statements strongly disagree = 1, disagree = 2, agree = 3 and strongly agree = 4. Then the semi-structured interviews were conducted to confirm the quantitative results. SPSS 21was used to look for descriptive and inferential statistics to see quantitative data, while for qualitative data, Miles and Huberman's method was used, namely data reduction, data display and conclusions (Miles & Huberman, 1994). Descriptive statistics are presented in summary frequency, such as mean, mode, median, minimum, maximum and standard deviation (Cohen et al., 2007). In this study, the descriptive statistics used are mean, min, max and category. Table 1 presents the categories of academic stress and motivation learning among pre-service teachers, including very good, good, poor and very bad.

Table 1. Motivation and motoric skills of pre-service teachers

| Category | Interval | |
|---|---|---|
| | Academic Stress | Motivation |
| Very not good | 23.0–40.2 | 18.0–31.5 |
| Not good | 40.3–57.5 | 31.6–45.0 |
| Good | 57.6–74.7 | 45.1–58.5 |
| Very good | 74.8–92.0 | 58.6–72.0 |

During data collection, the first activity that must be conducted is to select students based on the categories provided by the researcher, then give questionnaire of motivation learning and academic stress to pre-service teacher. The questionnaire is then processed using SPSS 21 application data to see descriptive statistics in the form of mean, min, max, percentage and category of students and to see if there is an impact on the two variables (Figure 1).
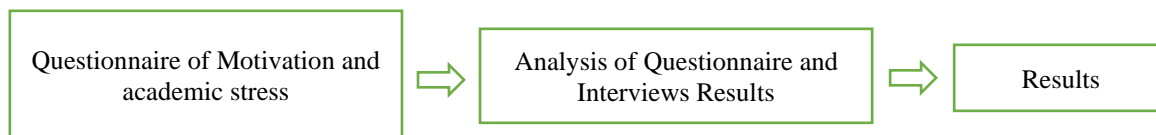


Figure 1. Data Collection

### 2.4 Analysis data

All data were obtained from the motivation learning academic stress questionnaires of pre-service teachers, which were collected, calculated and assisted with the SPSS 21 application. Descriptive statistics are given to calculate the frequency, percentage, mean, min and max of a sample (Creswell, 2012). In this study, quantitative data were analysed using parametric statistics from simple regression to determine whether there was an impact on student motivation and pre-service teacher academic stress, followed by interviews which are used to strengthen the results of quantitative data analysed using the Miles and Huberman method, namely reducing data, displaying data and concluding data.

## 3. Results and discussion

### 3.1 Academic stress Pre-Service Teacher

The results of the questions given and the results obtained using the SPSS 21 application can be seen in Table 2.

Table 2. The results of academic stress of pre-service teachers

| Classification | | | Mean | Min | Max | % |
|---|---|---|---|---|---|---|
| Interval | Category | Total | | | | |
| 23.0–40.2 | Not very good | 3 | | | | 1.9 |
| 40.3–57.5 | Not good | 8 | 68.0 | 30 | 89 | 5.2 |
| 57.6–74.7 | Good | 99 | | | | 63.8 |
| 74.6–92.0 | Very good | 45 | | | | 29.1 |
| Total | | 155 | | | | 100 |

From Table 2, which came from 155 pre-service teachers in Universitas Negeri Padang after they were obtained and the results obtained using the SPSS 21 application programme, academic stress among pre-service teachers was good, with 66.2% for 99 students from a total of 155 students, very good at 29.1% for 45 students from a total of 155 students, not good at 5.2% for 8 students from a total of 155 students and very bad at 1.9% for 3 students from a total of 155 students. From 155 students, the mean result was 68.0; the maximum score was 89; and the minimum score was 30.

The results of the academic stress analysis in Table 2 showed a good academic stress of 63.8% (99 of the 155) of the students. This is shown by good pre-service teachers in seeing the extent of the goals to be achieved and setting a plan in achieving the goals for academic success so that she/he will be able to overcome failure and reduce the potential for academic stress.

'In your opinion, how do you deal with the stress that will be caused in studying?'

'I often motivate myself, besides that, the environment around me also supports me, so I don't experience that stress'

### 3.2. Learning motivation

The results of the questions given and the results obtained using the SPSS 21 application can be seen in Table 3.

Table 3. The results of motivation questionnaire of pre-service teachers

| Classification | | | Mean | Min | Max | % |
|---|---|---|---|---|---|---|
| Interval | Category | Total | | | | |
| 18.0–31.5 | Not very good | 3 | 52.5 | 27 | 68 | 1.9 |

| | | | | |
|---|---|---|---|---|
| 31.6–45.0 | Not good | 8 | | 5.2 |
| 45.1–58.5 | Good | 104 | | 67.1 |
| 58.6–72.0 | Very good | 40 | | 25.8 |
| Total | | 155 | | 100 |

From Table 3, which came from 155 pre-service teachers in Universitas Negeri Padang after they were obtained and the results obtained using the SPSS 21 application programme, the pre-service teacher motivation had a good dominant result, with 67.1% for 104 students from a total of 155 students, very good at 25.8% for 40 students from a total of 155 students, not good at 5.2% for 8 students from a total of 155 students and very bad at 1.9% for 3 students from a total of 155 students. From 155 students, the mean result was 52.5; the maximum score was 68; and the minimum score was 27.

The results of the motivation analysis in Table 3 showed a good motivation for 67.1% (104 out of 155) of the students. This is shown by the good pre-service teachers who have achievement motivation and will be able to know the direction and purpose in achieving academic achievement which then affects their success in achieving the expected achievements.

'In your opinion, do you need motivation to achieve your academic achievement?'

'It is very necessary, because, by having good motivation I am able to determine the direction and goals where I will achieve'

### 3.3. The influence of academic stress and learning motivation of pre-service teachers

The results of the influence of academic stress and learning motivation pre-service teacher can be seen in Table 4.

Table 4. Results of regression

| Variabel | Unstandardised Coefficients | | Standardised Coefficients | $t$ | Sig. |
|---|---|---|---|---|---|
| | $B$ | Std. error | Beta | | |
| 1 (Constant) | 14.521 | 3.151 | | 4.584 | 0.000 |
| Motivation | 0.246 | 0.174 | 0.143 | 1.378 | 0.021 |

From Table 4, it can be seen the results of a simple regression test found that the regression equation is $Y = 14.521 + 0.246X$. The number of contributions to pre-service teachers' academic stress on motivation can be seen in Table 5.

Table 5. Contribution from learning motivation for academic stress

| Model | $R$ | $R$ square | Adjust $R$ Square | Std. error of the estimate |
|---|---|---|---|---|
| 1 | 0.730 | 0.532 | 0.561 | 2.503 |

The results of simple regression analysis show that the value of the determination coefficient is ($R^2$) 0.532. This means that the contribution of learning motivation to pre-service teacher academic stress is 53.2%, while the remaining 47.8% is influenced by other variables.

Uncontrolled emotions will hinder the development process (Park, 2016). In general, someone who cannot beat stress tends to be cognitively impaired (Tomiyama, 2019). With Stress that can be controlled then by itself an ability has a significant increase. The causes of this stress vary from the intensity of exercise and other external problems. However, to minimise this, the trainer can provide therapy, such as choosing a comfortable place to practice and modifying training procedures (Moon et al, 2020). With a comfortable place, the training objectives can be achieved (North et al, 2018; Seel, 2006). Athletes who get achievements are synonymous with being calm on the field, with which goals can be achieved perfectly. Many athletes have skills but lack stress management, and this is due to overthinking and being too pushy. This can cause excessive stress.

These conditions can have a negative impact on students' achievement (Storm & Eske, 2021). Every student certainly has the desire to excel in the academic field, including student athletes. Student athletes are required to be able to develop sports potential while still prioritising academic activities at school (Mann et al., 2016; Mosanya, 2021; Syahrial et al., 2020). This shows that student athletes have two demands, namely in the field of sports and demands in the academic field which are the same as students in general. Demands in the field of sports, namely for student athletes, must be able to excel by winning sports championships, while demands in the academic field such as doing assignments, getting good grades and others. The existence of various demands in the academic field can potentially cause stress for student athletes (Chacon-Cuberos, 2019).

In a state of stress, a person's cognitive condition will be disturbed and tend to take a minimal theoretical action (Patricia Aguilera-Hermida, 2020; Tomporowski et al, 2019). Sports learning achievement is a demand that is usually emphasised by a party to athletes, wherein there is no strong motivation, it will disrupt the athlete's psychology and can have an impact on stress. Participants who are motivated will be more active and able to solve the problems they face (Kemp et al., 2019; Macdonald, 2013). A person when he gets a positive stimulus will produce a positive work and vice versa (Garcia Botero et al., 2018). The higher the expected achievement, the higher the motivation raised in him. Motivation is formed to achieve goals and needs. Motivation is related to human needs, both basic and higher level needs (Leana-Tascilar, 2015; Mouratidis et al., 2008).

High achievement motivation will lead to low academic stress (Wigfield et al., 2021). This influence proves that achievement motivation is needed because if someone has achievement motivation, that person will do things better (McClelland, 2009). This is, of course, needed by student athletes, who have different needs, time and capacities from regular students but they also have to carry out their academic obligations well just like regular students (Vecchione et al., 2017; Zimmerman, 2008). The existence of achievement motivation in student athletes is expected to be able to carry out these obligations without feeling pressured. Mulya and Indrawati (2017) explain that achievement motivation can affect academic stress, whereas high motivation causes low academic stress and low motivation causes high academic stress. Individuals who can increase achievement motivation can overcome difficulties easily, thereby avoiding the potential for academic stress to arise.

## 4. Conclusion

It can be seen that the results of stress management, and motivation have a good category because, with students having good motivation in themselves, it will support the pre-service in managing if he/she is experiencing an injury well and because he/she will be driven by high motivation. Nonetheless, it is owned by him which will produce output in the form of sports achievements that the pre-service is engaged in. This is also supported by the relationship between stress management, with motivation in sports achievement. There is an influence between these two

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variables with a contribution of 53.2%. According to the results, it is recommended that pre-service needs to be given more motivation from stakeholders related to the sport in order to reduce the academic stress of the pre-service.

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