

# The Effect of Dysmenorrhea and Anxiety on Agility With Moodstate as Intervening Variable

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**Abstract**—Dysmenorrhea is a disorder during menstruation. Dysmenorrhea can reduce student participation in class, concentration in class, sports participation, socialization and test taking skills. For PE teachers, the incidence of menstruation in students is enough to bring solutions to learning. Those who are menstruating alone look positive atmosphere in physical events in learning. In addition, those who are menstruating and discussing dysmenorrhea add to the problem of participating in learning. Students who experience menstruation and open dysmenorrhea allow erratic feelings. Measurements are made by those who are not optimal. This study attempts to prove that there is a relationship between dysmenorrhea, anxiety, moodstate, and agility in female Vocational High School students when stimulating. The type of research used is correlational. A total of 106 female students were selected by purposive sampling. Data analysis using regression techniques with a confidence level of 95%. The results showed that the variable dysmenorrhea and anxiety together can directly affect agility by 6.1%. However, moodstate fails to be an intervening variable in the effect of dysmenorrhea and anxiety on agility.

**Keywords**— *dysmenorrhea, anxiety, moodstate, agility, and female students*

## I. INTRODUCTION

Dysmenorrhea during menstruation is one cause of student participation in learning [1]. Menstruation is a period of bleeding that occurs regularly to women every month during her fertile period unless pregnancy occurs [2]. Every once a month a young woman will experience menstruation, but each of them has a different cycle, namely the distance of one menstruation with the next menstruation. Every woman starts different periods.

The main problem that is often experienced by women during menstruation is pain in the abdomen commonly called dysmenorrhea. Dysmenorrhea is a physical disorder that is very prominent in menstruating women in the form of abdominal pain or cramps [3]. Feelings of pain during menstruation can be mild cramps in the genitals until disruption occurs in daily tasks [4].

The results showed that dysmenorrhea had an impact on the daily physical activity of the students [5]. Even in Marocco, students are limited in attending school activities due to students experiencing dysmenorrhea [6]. In addition, the incidence of dysmenorrhea can reduce the participation

of students in the classroom, concentration in class, sports participation, socialization and test-taking skills [1]. Some symptoms during menstruation come are abdominal pain, cramps in the stomach, emotional disturbances, back pain and so on. Pain during menstruation is usually called Premenstrual Syndrome (PMS). According to Dr. Guy E. Abraham, obstetrician and obstetrician from the UCLA-US School of Medicine [3], dividing PMS according to its symptoms, namely PMS types A, H, C and D. As many as 80% of PMS disorders are type A. Type H patients are around 60%, type C PMS is 40%, and type D PMS is 20%. So what will be discussed here is PMS type A because it is the disorder most experienced by women when menstruating.

Type A PMS (Anxiety) is characterized by symptoms, such as anxiety, sensitivity, tense nerves, and feeling unstable. Anxiety is often about its future or an activity that will be carried out. People who experience anxiety disorders will be hit by an inability to face strong feelings of anxiety so that they are unable to perform their daily activities properly. According to Weinberg and Gould, anxiety or anxiety is a negative emotional state characterized by feelings of worry, anxiety, and accompanied by increased alertness [7]. Anxiety is a negative emotional state characterized by feelings of worry, anxiety, and accompanied by an increase in the body's system [8].

Anxiety can cause motor dissonance in athletes because of tension, doubt and uncoordinated movements. Anxious feelings are caused by the shadow before the game or before starting the lesson because there are psychological stresses when playing and the nature of the sports competition which is full of changes from the state of the game or the natural conditions that make the self confidence of the skills decrease. [9]. This also plays a role in the mood or feeling experienced by someone. Mood is a condition of feeling that continues to exist and colors our psychological life, a changing feeling. Feelings of sadness or depression are not abnormal in the context of stressful events or situations.

Understanding physical fitness is the ability to do daily activities with full vitality and alertness without experiencing significant fatigue and still enough energy to move around during leisure time and deal with things that are emergency (emergency) [10]. This component is needed in daily activities, especially in physical education, sports and health. Generally agility can be defined as the ability to

explosively start, reduce speed, change direction, and speed up quickly while maintaining body control and minimizing speed reduction [11].

II. METHOD

A. Type of Research

Correlational research is used in proving the relationship between dysmenorrhea, anxiety, moodstate, and agility. The causal relationship is used in explaining the relationship between the four research variables.

B. Research Subject

The study was conducted on female students at a Vocational High School. The number of students involved was 106 people (see table 1) who were selected by purposive sampling with 3 provisions, namely: (1) female students with ages 15-17 years old; (2) students who experience menstruation during an agility test; and (3) female students who are not athletes in a sport.

The subject of the study was dominated by students aged 16 years as many as 74 students (69.81%), 17 years old as many as 17 students (16.03%), and 15 years old as many as 15 students (14.15%). Women of this age normally have had menstrual periods repeatedly each month.

TABLE 1. RESEARCH SUBJECT

Age	Subject	Percentage
15	15	14.15%
16	74	69.81%
17	17	16.03%
Total	106	100%

C. Instrumentation

Two types of research instruments were used, namely: (1) questionnaire to measure dysmenorrhea, anxiety, and moodstate; and (2) skills test to measure students' agility, the test used is the shuttle run.

• Numeric Rating Scale for Dismenore

Questionnaire for measuring dysmenorrhea uses a Numeric Rating Scale (NRS) that utilizes a row of numbers 0-10 to interpret the pain experienced into these numbers (see figure 1).

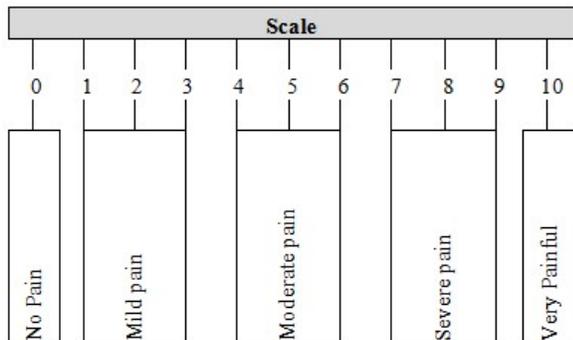


Fig. 1. Numeric Rating Scale for Dysmenorrhea

As long as the number 0-10 sequence is determined the five categories of pain experienced by students, namely No

Pain to Very Painful. Interpretation of each category of dysmenorrhea according to the following (see table 2).

TABLE 2. RESEARCH SUBJECT

Scale	Category	Interpretation
0	No pain	There is no menstrual pain/ cramps in the lower abdomen
1-3	Mild pain	Feeling cramps in the lower abdomen, still being held, can still do activities, can still concentrate learning
4-6	Moderate pain	Feeling cramps in the lower abdomen, pain spread to the waist, lack of appetite, some activities can be disrupted, difficult/ difficult to concentrate learning
7-9	Severe pain	Severe cramps in the lower abdomen, pain spread to the waist, thighs or back, no appetite, nausea, weakness, lack of activity, unable to concentrate on learning
10	Very painful	Severe cramps in the lower abdomen, pain spread to the waist, legs, and back, do not want to eat, nausea, vomiting, headaches, body no energy, can not stand or get out of bed, unable to move, sometimes until unconscious.

• Questionnaire for Measuring Anxiety

Questionnaire to measure anxiety was adopted from the results of questionnaire development measuring the anxiety carried out by [12]. There are four components of measured anxiety, namely cognitive, affective, somatic, and motoric. The questionnaire used was tested on 1000 respondents which resulted in item validity of 0.215-0.825.

• Questionnaire for Measuring Moodstate

POMS (The Profile of Mood States) is a personal evaluation designed to measure six dimensions in one's mood [4]. These six dimensions include: tension-anxiety, depression dejection, anger-hostility, vigor-activity, fatigue-inertia and confusion bewil derment. This POMS takes the form of a questionnaire using a Likert scale (0 which means not at all up to 4 which means very). Measuring moodstate levels is done by using POMS (Profile of Mood States), because this measuring instrument is designed not only to adhere to the negative side of one's emotions but also the positive side of emotions in someone. The advantages of POMS are easy to use, concise, and this measurement tool is designed to be able to capture the negative and positive side of the emotions felt by someone. In this study using POMS-SF (Short-Form).

• Shuttle-Run Test for Agility

Shuttle-run is used to measure students' agility. Shuttle run is carried out on a 10m track. Start / finish is done in the center line of the length of the track. Agility of students is recorded in the form of time taken using a stopwatch. The test is carried out by means of competition two students do together.

D. Data Analysis

The research data will be analyzed using descriptive statistics in order to find out the central tendency and distribution of data based on measurement categories. Next, to find out the relationship of the four research variables used regression.

**III. RESULT AND DISCUSSION**

*A. Data of Dysmenorrhea Levels*

Data on dysmenorrhea is the result of measuring pain perception felt by students during menstruation. Measurements using the analysis of answers from respondents on the NRS (Numeric Rating Scale) questionnaire. The measurement results are classified into five categories, namely: no pain, mild pain, moderate pain, severe pain, and very painful (see table 3).

In table 3, it can be seen that the range of dysmenorrhea categories at the level of pain is those who get a value of 0, mild pain when they get a score of 1-3, moderate pain when they get a score of 4-6, severe pain when they get a score of 7-9, and pain once if you get a score of 10. There are no respondents (0 students / 0%) who claim no pain, severe pain and pain. A total of 46 students (43%) experienced mild pain and as many as 60 students (57%) experienced moderate pain.

TABLE 3. DYSMENORRHEA LEVELS

Category	Range of Category	F	%
no pain	0	0	0%
mild pain	1-3	46	43%
moderate pain	4-6	60	57%
severe pain	7-9	0	0%
very painful	10	0	0%
Total		106	100%

*B. Data of Anxiety Level*

The anxiety variable was measured by a questionnaire consisting of 21 items. The answers to the questionnaire results were analyzed based on the scale available in each answer option in the questionnaire. From the 21 statement given to 106 respondents when experiencing menstruation, it was obtained the description data and frequency of student anxiety data as in table 4 as follows.

TABLE 4. DYSMENORRHEA LEVELS

Descriptive		Distribution			
Statistic	Score	Category	Range of Category	F	%
Mean	47.7	Very low	1-22	0	0%
St. Dev.	4.31	Low	23-44	24	23%
Minimum	33	High	45-66	82	77%
Maximum	58	Very high	67-88	0	0%
Total				106	100%

Based on table 4 above, it can be explained that the description of the mean anxiety value data of students when menstruating is 47.7, the standard deviation is 4.31, the lowest value is 33, and the highest value is 58. The frequency distribution of data anxiety can be seen that no students those who have the level of anxiety in theory are very low. As many as 24 students (23%) had a low level of anxiety, 82 students (77%) had a high level of anxiety and

there were no respondents who experienced very high anxiety.

*C. Data of Moodstate Level*

The Moodstate variable was measured by a questionnaire consisting of 37 items. The results of moodstate data analysis can be seen in table 5 as follows.

TABLE 5. DATA OF MOODSTATE LEVEL

Descriptive		Distribution			
Statistic	Score	Category	Range of Category	F	%
Mean	96,4	Very low	37-74	3	3%
St. Dev.	10,13	Low	75-111	98	92%
Minimum	64	High	112-148	5	5%
Maximum	113	Very high	149-185	0	0%
Total				106	100%

Based on table 5, the results of the moodstate assessment can be explained, the highest score is 185, the lowest score is 37, the mean is 96.4, and the standard deviation is 10.13. Can be seen from table 4.5 data distribution above very low category there are 3 students (3%) low category there are 98 students (92%) then high category there are 5 students (5%) and no students have moodstate level in very high category.

*D. Data of Agility Level*

Agility of students is measured using shuttle-run within a distance of 10m which is measured using a stopwatch, and agility achievements are recorded using units of seconds. Data description will analyze data by calculating data using the formula mean, standard deviation, highest value, and lowest value. Then the data is categorized using the rules for categorizing agility. The results of the description and frequency distribution of agility data can be seen in table 6 as follows.

TABLE 6. DATA OF AGILITY LEVEL

Descriptive		Distribution			
Statistic	Score	Category	Range of Category	F	%
Mean	14,4	Very good	≤ 12,42	1	1%
St. Dev.	0,88	Good	12,43 – 14,09	32	30%
Min	12,3	Fair	14,10 – 15,74	63	59%
Max	16,57	Less	15,75 – 17,39	10	9%
		Very less	≥ 17,40	0	0%
Total				106	100%

Based on table 6 above, it can be explained the description of agility data, namely the mean with a score of 14.4, the standard deviation of 0.88, the lowest value of 12.3 while for the highest value of 16.57. There is only 1 student (1%) in the very good category for agility frequency distribution, 32 students (30%) in the good category, 63 students (59%) in the fair category, and 10 students in the less category (9%).

**E. Effects of Dysmenorrhea and Anxiety on Agility through Moodstate**

To find out the effect of dysmenorrhea and anxiety on agility through moodstate regression is used (see table 7). Regression model 1 is a regression analysis containing two variables, namely dysmenorrhea and anxiety in influencing agility. In the R Square column (%) it can be seen that the contribution of dysmenorrhea and anxiety together as agility predictors is 6.1%. The F Change value of 3.365 is followed by the sig value. in the amount of 0.038 <0.05, it is concluded that dysmenorrhea and anxiety together can predict agility significantly.

TABLE 7. REGRESSION ANALYSIS FOR EFFECTS OF DYSMENORRHEA AND ANXIETY ON AGILITY THROUGH MOODSTATE

Model Summary						
Model	R	R Square	R Square (%)	Change Statistics		
				R Square	F	Sig
1	0,248a	0,061	6,1%	0,061	3,365	0,038
2	0,277b	0,077	7,7%	0,016	1,714	0,193
3	0,314c	0,099	9,9%	0,022	1,208	0,303

- a. Predictors: (Constant), Dismenore, Anxiety
- b. Predictors: (Constant), Dismenore, Anxiety, Moodstate
- c. Predictors: (Constant), Dismenore, Anxiety, Moodstate, Product\_1, Product\_2

Regression model 2, the regression analysis is continued by entering the moodstate variable predicting agility. In the R Square column (%) it can be seen that the contribution of dysmenorrhea and anxiety as an agility predictor is 6.1% added with the moodstate variable increasing to 7.7%. However, the result of F Change is 1.714 followed by the value of sig. at 0.193 > 0.05, it was concluded that moodstate cannot predict agility significantly. This test is based on the results of research that there is a relationship between anxiety and moodstate on the physical symptoms of a person experiencing menstruation [13]. So it is suspected that the occurrence of irregular mood changes will result in a woman's agility being affected. The rejection of this hypothesis could occur because this study was conducted on women who have experienced menstruation frequently. Indeed, the results of other studies show that most women have an unstable mood during menstruation [14], [15], but those who have experienced menstruation are able to regulate themselves to get used to these disorders. So that the consequences of menstruation will no longer be meaningful.

Model 3 regression has entered dysmenorrhea, anxiety, moodstate, product\_1, and product\_2 so that R Square (%) increased from 6.1% to 7.7% until it finally dropped to 9.9%. This means that with the entry of product\_1 and product\_2 predictors of dysmenorrhea, anxiety and moodstate increases in its ability to predict agility. Seen in the R Square Change column there is a value of 0.022 which if changed percent to 2.2%. This means that product\_1 and product\_2 can contribute to predicting agility by 2.2%. The F Change value is 1.208 followed by the sig value. at 0.303 > 0.05, it is concluded that product\_1 and product\_2 cannot predict agility significantly. Based on the explanation

above, it can be concluded that the variable dysmenorrhea and anxiety can directly affect agility by 6.1%. However, moodstate fails to be an intervening variable in dysmenorrhea and anxiety in influencing agility.

In fact, researching the relationship of anxiety to students' performance in sports is very difficult. However, based on the results of research it has been proven that primary dysmenorrhea has an impact on women's performance in sports [16]. Because this study was conducted on students who are no longer in the first menstrual condition, the hypothesis proposed is rejected, ie there is no relationship between dysmenorrhea and agility.

**IV. CONCLUSION**

In accordance with the research objectives it can be concluded that only two levels of dysmenorrhea suffered by students are mild and moderate pain, high anxiety level, low moodstate level, and moderate agility value. Variables of dysmenorrhea and anxiety together can directly affect on agility by 6.1%. However, moodstate fails to be an intervening variable in the effect of dysmenorrhea and anxiety on agility.

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