# Analysis of Factors Influencing the Incidence of Polymenorrhea

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## ABSTRACT

**Background:** Polymenorrhea is a problem that occurs in teenagers. Polymenorrhea can occur due to an imbalance in the hormonal system in the hypothalamic axis which can result in disturbances in the ovulation process (release of egg cells). The aim of this research is to determine the factors that influence the incidence of polymenorrhea in female students at the Strada Indonesia Institute of Health Sciences Kediri City.

**Methods:** The research design used was observational analytics with a cross-sectional approach. The sample size is 44 respondents. This research sampling used simple random sampling. Data collection used a questionnaire and statistical tests used the chi-square test with \( \alpha = 0.05 \).

**Results:** The research results showed that almost all respondents (72.7%) had moderate stress, namely 32 respondents and almost all respondents (90.9%) had polymenorrhea, namely 40 respondents from a total of 44 respondents. Based on the results of statistical tests that have been carried out, it is known that the \( p \)-value = 0.000 is smaller than \( \alpha \) (0.05).

**Conclusion:** It can be concluded that H0 is rejected and H1 is accepted. Respondents with moderate stress experienced polymenorrhea due to the large amount of work carried out by the respondent, namely tasks that made the respondent easily tired and even sick, resulting in metabolic disorders in the respondent, so polymenorrhea also occurred in the respondent.

## I. Introduction

Menstruation is the shedding of the uterine wall (endometrium) which is accompanied by bleeding and occurs every month except during pregnancy. Menstruation that occurs every month is called the menstrual cycle (Prastiwi, 2021). Menstruation usually occurs at the age of 11 years and lasts until menopause (usually occurs around the age of (45-55 years). Almost 90% of women have a menstrual cycle of 25-35 days, and only 10-15% have a cycle of 28 days. However, there are some women who have irregular cycles, this is influenced by physical and psychological conditions (Jalilah, 2011).

During adolescence, physical organ changes occur rapidly and are not balanced with mental changes. One type of menstrual cycle irregularity is polymenorrhea, namely a shorter menstrual cycle than usual, namely less than 21 days, while the amount of bleeding is relatively constant. There are various factors that influence polymenorrhea, including hormonal factors, stress, BMI, lifestyle. If these factors arise, but are not immediately addressed, then this can lead to a decrease in a person's self-confidence and will cause feelings of discomfort, anxiety and unrest in the person experiencing it (Supratiknyo, 2016). According to the World Health Organization (WHO, 2018), it shows that in Alexandria, the percentage of young women experiencing polymenorrhea is 9.8%, oligomenorrhea 8.4%, amenorrhea 4.2%. Results of a research study in Japan conducted by Fujiwara (2018) on 522 women aged 18-20 years studying at Ashiya College It was found that 33% of women experienced irregular menstruation. And according to experts at Epigee, 30% of women of reproductive age experience irregular menstrual cycles (WHO, 2018).
Based on a preliminary study from 23-28 November 2019 at the Strada Indonesia Institute of Health Sciences (IIK), Kediri City, it was discovered that 10 female students often experienced menstruation twice or more a month. The results of a preliminary study conducted by researchers on 02-07 December 2019 at the Strada Indonesia Institute of Health Sciences (IIK) Kediri City with interviews with 10 female students revealed that 5 female students said they often felt anxious, scared and worried about a short menstrual cycle distance of less than 21 day. Female students said that they often felt headaches, dizziness during menstruation or even after menstruation so that students became unfocused in attending lectures and there were even students who did not follow the lecture process and asked permission to go home to their boarding house to rest. 3 female students said that they often experienced stress which resulted in insomnia due to the increased frequency of menstruation (more than 1-2 times a month) which resulted in absenteeism during lectures and also the behavior of female students in not completing assignments such as preparing papers and so on. 2 female students said that they had experienced polymenorrhea and that it was only temporary and could heal on its own. One student's statement stated that when experiencing continuous polymenorrhea, the student's behavior would be to consult a doctor because of the student's perception that continuous blood loss could cause anemia (Results of Preliminary Study with Interviews with Respondents at the Institute of Health Sciences (IIK) Strada Indonesia Kediri City, 2019).

Polymenorrhea can occur due to an imbalance in the hormonal system in the hypothalamic axis which can result in disturbances in the ovulation process (release of egg cells). Adolescents with polymenorrhea clearly mean that there is a disturbance in the anatomical structure of the organ, this could be due to the endometrium or bad hormones making it difficult to get pregnant (Supratiknyo, 2016).

The aimed of this research is to determine the factors that influence the causes of polymenorrhea in female students at IIK STRADA Indonesia.

II. METHODS

This research is quantitative research with an observational analytical study type. The approach used in this research is cross sectional, namely research that aims to determine the relationship or influence of two or more variables with a data collection process that is only carried out once for each research variable. Regarding data collection, this research used a Google form to fill in online and in-depth observation. Distributed Google forms using a WhatsApp application and observations were made on 50 IIK Strada students.

The population in this study were all female students at the Strada Indonesia Institute of Health Sciences (IIK) Kediri City, namely 50 female students. And the sample used in this research was some female students at the Strada Indonesia Institute of Health Sciences (IIK) Kediri City, totaling 44 respondents using the Slovin formula. In this research, researchers took samples using the Purposive Sampling method.

The instrument in the research is a questionnaire. In this research, the data used is primary data. To collect data, researchers will use a questionnaire method containing closed-ended questions that have been created by researchers referring to theories and concepts. Data analysis used in the research used the Chi Square statistical test to determine the influence between independent and dependent variables with a confidence level of $\alpha = 0.05$. The calculation process is assisted by using the Statistical Program for Social Science (SPSS) for Windows. Drawing conclusions from hypothesis testing results.

As the ethical consideration, the researcher use the informed consent, anonymity principle and confidentiality principle.

III. RESULTS

Table 1. General data on respondent characteristics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>25-25</td>
<td>38</td>
<td>86.4</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>4</td>
<td>9.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residence</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own/parent’s house</td>
<td>10</td>
<td>22.7</td>
</tr>
<tr>
<td>Boarding/contract</td>
<td>34</td>
<td>77.3</td>
</tr>
</tbody>
</table>

Information about polymenorrhea
The incidence of polymenorrhea

<table>
<thead>
<tr>
<th>Variable</th>
<th>Asymp. sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of factors influencing the incidence of polymenorrhea in female students at IIK STRADA Indonesia</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Based on the results of statistical tests that have been carried out, it is known that the value of \( \rho \)-value = 0.000 is smaller than the value of \( \alpha \) (0.05). It can be concluded that \( H_0 \) is rejected and \( H_1 \) is accepted, which means that there is an influence of factors (BMI, stress) on the incidence of polymenorrhea in female students at IIK STRADA Indonesia.

IV. DISCUSSION

Body Mass Index (BMI) of Female Students at IIK STRADA Indonesia

From the results of research conducted at IIK STRADA Indonesia regarding the BMI of female students, it was found that almost all respondents (81.8%) had a normal BMI, namely 36 respondents out of a total of 44 respondents. This is due to hormonal disorders, especially those related to sexual hormones in women, namely, progesterone, estrogen, LH and FSH. With this hormonal disorder, it will affect the metabolism of the estrogen hormone in the female reproductive system (Kumalasari, 2016).

The results of research conducted by Baskeran (2021), regarding the relationship between body mass index and menstrual cycle in female students at the Faculty of Medicine, University of North Sumatra, showed that 41.7% of BMIs were underweight, 25% of BMIs were normal, 37.5% of BMIs overweight, and 47.7% of obese BMIs have irregular cycles. Based on the hypothesis test, it was found that \( p<0.05 \) (\( X^2=8.87, p=0.031, CI 95\% \)) which indicates that there is a significant relationship. Apart from that, there is research conducted by Mulyani (2016), regarding the relationship between body mass index (BMI) and the menstrual cycle in 2013 female students at the Faculty of Medicine, Malahayati University. Bandar Lampung, it was found that the research results showed that female students with normal BMI were 63.6%, abnormal BMI was 36.4% and female students with menstrual cycles normal 71%, abnormal menstrual cycle 29%.

The results of research conducted by researchers also found that there was an influence of gender on the respondent’s BMI. Where the results of the cross tabulation between gender and the BMI of the respondents showed that all respondents (81.8%) were female and had a normal BMI, namely 36 respondents out of a total of 44 respondents.

Mulyani (2020), said that gender influences a person’s BMI. Where in women, excessive use of the hormone progesterone can cause weight gain due to changes and stimulation of appetite. According to Trisnawati (2018), female students with this condition tend to have more fat cells so that the production of the hormone estrogen is also excessive. As for women who are underweight, they tend to lack fat cells so that the production of the hormone estrogen is reduced. This has an impact on the incidence of menstrual cycle irregularities.

From the opinion above, the researcher found that female respondents had a normal body weight because the respondent’s progesterone production was in accordance with the body’s needs, so the respondent’s food needs were adequate, so that the measurement showed that the respondent’s BMI was
normal. Respondents with normal body weight also had fewer fat cells so that when measuring BMI they were within normal limits.

**Stress in female students at IIK STRADA Indonesia**

Research conducted at IIK STRADA Indonesia regarding student stress found that almost all respondents (72.7%) had moderate stress, namely 32 respondents out of a total of 44 respondents. The menstrual process can cause potential problems for women's reproductive health related to fertility, namely menstrual patterns. Disorders of the menstrual process such as the length of the menstrual cycle can cause the risk of chronic diseases such as anemia. It is important for female students to know about stress levels and the menstrual cycle because the two are closely related (Kumalasari, 2019).

The results of research conducted by Yudita (2017), regarding the relationship between stress levels and menstrual disorders in medical students at the Faculty of Medicine, Andalas University, showed that 48.6% had normal stress levels, and 27.5% of respondents had low stress levels. Meanwhile, 75.4% of respondents had a normal menstrual picture, while 12.7% experienced oligomenorrhea. The chi-square test results show $p$-value = 0.843, which concludes that there is no significant relationship between stress levels and menstrual disorders. Meanwhile, other research was conducted by Maedy (2022), about what stress and nutritional status can cause Menstrual Cycle Irregularities, the results showed that respondents who were not stressed and had regular menstrual cycles were 35 people (85.4%), respondents who were not stressed and had irregular menstrual cycles were 6 people (14.6%), while respondents who were stressed and had irregular menstrual cycles 16 people (32.7%) had regular menstruation and 33 people (67.3%) had irregular menstrual cycles.

From the opinion above, the respondent researchers found that the respondents had moderate stress due to weight gain due to lack of activity due to the corona outbreak, resulting in irregular rest patterns. On the other hand, when the respondent experiences menstruation, the respondent's feelings change so that when the respondent thinks about things that change, it increases stress in the respondent. From the results of filling out the questionnaire we can see that most respondents have moderate stress.

**Incident Polymenorrhea in female students at IIK STRADA Indonesia**

Research conducted at IIK STRADA Indonesia regarding polymenorrhea obtained that almost all over respondents (90.9%) with incident polymenorrhea namely 40 respondents from a total of 44 respondents. Polymenorrhea is frequent menstruation, namely a short menstrual cycle interval of less than 21 days. When a woman experiences more frequent menstrual cycles, it is known as polymenorrhoea. Polymenorrhea can be caused by hormonal disorders which result in ovulation disorders, resulting in a shortened luteal period (Priantika, 2023). These menstrual cycle disorders cause students to feel anxious, worried, reduced appetite, sleep disorders, such as headaches and indigestion, decreased memory and postponed work, behavioral disorders, impaired interaction with the surrounding environment and become unfocused in attending lectures (Nathalia, 2019).

From the opinion above, researchers found that respondents often menstruate frequently due to abnormalities in the respondent's hormones. The results of interviews with several respondents said that frequent stress was what made respondents menstruate frequently. This could result in polymenorrhoea incidents continuing to recur due to the activities carried out by the respondent, so respondents are advised to always take care not to get too stressed (Ekawarna, 2018). Stress also affects polymenorrhea. The results of research conducted at IIK STRADA Indonesia regarding cross-tabulation of stress and the incidence of female student polymenorrhea showed that almost all respondents (72.7%) were moderately stressed and experienced polymenorrhea, namely 32 respondents out of a total of 44 respondents.

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**V. CONCLUSION**

Based on the research results, it can be concluded that almost all respondents (81.8%) have a normal BMI, namely 36 respondents out of a total of 44 respondents, 32 respondents out of a total of 44 respondents or 72.7% experienced moderate stress, and almost all respondents (90.9%) experienced polymenorrhea, namely 40 respondents out of a total of 44 respondents. There is a relationship between stress and BMI with polymenorrhea, so based on the results of statistical tests that have been carried out,
it is known that the ρ-value = 0.000 is smaller than the α value (0.05). It can be concluded that H0 is rejected and H1 is accepted.

VI. CONFLICTS OF INTEREST
The author has no conflict of interest to declare

REFERENCES
Baskeran, P. (2021). Relationship between Body Mass Index and Menstrual Cycle in Female Students at the Faculty of Medicine, University of North Sumatra (Doctoral dissertation, Universitas Sumatera Utara).


