

## THE EFFECT OF MONITORING EDUCATION ON MENSTRUAL HEALTH AWARENESS AMONG COLLEGE STUDENTS IN BANTEN

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### Abstract

Previous studies have shown that female college students have a low awareness of menstrual health. This situation must be resolved to prevent negative effects on their reproductive health. The objective of this study was to identify the effect of menstrual flow monitoring education on menstrual health awareness using lectures, demonstrations, and exercises. The researcher used menstrual flow charts and menstrual calendars as learning media. This study used a quasi-experimental design with only one group pretest and posttest. The sample was made up of 117 female college students from the Economic Education Study Program at University X; the individuals were selected by a purposive sampling technique. The data were analyzed using a paired t-test. There was a significant difference in menstrual health awareness score between pretest and posttest ( $p = 0.017$ ). The researchers recommend that future study should include the performance of a randomized control trial on a larger population.

Keywords: menstrual health awareness, menstrual flow monitoring, education

### Abstrak

*Pengaruh Edukasi Monitoring Terhadap Kesadaran Kesehatan Menstruasi pada Mahasiswa di Banten. Penelitian sebelumnya menunjukkan bahwa mahasiswi memiliki kesadaran rendah akan kesehatan menstruasi. Kondisi ini harus diselesaikan untuk mencegah dampak negatif pada kesehatan reproduksi mereka. Tujuan dari penelitian ini adalah untuk mengidentifikasi pengaruh edukasi menstruasi menggunakan ceramah, demonstrasi, dan latihan. Peneliti menggunakan menstruasi sebagai media pembelajaran. Desain penelitian ini adalah kuasi eksperimen dengan satu kelompok pretest dan posttest. Sampel penelitian meliputi 117 mahasiswi Program Studi Pendidikan Ekonomi, Universitas X yang diseleksi menggunakan teknik purposive sampling. Data dianalisis menggunakan Paired t-test. Terdapat perbedaan yang signifikan skor kesadaran kesehatan menstruasi antara pretest dan posttest ( $p = 0.017$ ). Peneliti merekomendasikan desain randomized control trial pada populasi yang lebih besar untuk penelitian selanjutnya.*

*Kata kunci: kesadaran kesehatan menstruasi, menstrual flow monitoring, edukasi*

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### Introduction

The World Health Organization (WHO) defines the youth as people in the age range of 10–24 (WHO, 2018). Female college students, who are included in that group, have experienced menstruation at their age. Several of them have complained of physical discomfort, such as abdominal pain, or emotional problems during their period. These problems frequently

disturb their academic activities (Ali & Rizvi, 2010; Dudeja, Sindhu, Shankar, & Gadekar, 2016). They should know about menstrual health as a starting point to maintaining their reproductive health.

When young women experience menarche, they should have comprehensive knowledge about menstruation or at least basic information. Various studies, however, have found that their

knowledge is poor. Young women in some countries consider menstruation a pathological process, a condition caused by the curse of God, or suffering for the sins of their forefathers (Busari, 2012; Fehintola et al., 2017). Furthermore, most young women are unaware of the duration of a normal menstrual period, the normal cycle length of menstruation, and the source of menstrual blood (Fehintola et al., 2017; Shoor, 2017). They are not aware of menstrual cycle abnormalities, the characteristics of abnormal menstrual bleeding, and the danger of late detection of abnormalities. These gaps in knowledge demonstrate the need for health education about the concept of menstruation, including menstrual flow monitoring, to increase menstrual health awareness.

Reproductive health awareness is the awareness of healthful conditions, including the systems, functions, and reproductive processes that are needed for healthy reproduction (Arianti, 2012). A knowledge and awareness of menstrual health creates attitudes that hopefully lead to positive behaviors, particularly in women's reproduction (Langer et al., 2015). Therefore, it is essential for young women to have good menstrual health awareness (Sharma et al., 2013). Menstrual health awareness encompasses a young woman's awareness of what a healthy system looks like, what its functions are, and how the process of menstruation takes place. She should also be able to recognize signs of abnormal menstruation and take early steps to treat the problem (Gustina & Djannah, 2015).

Several studies have found that lots of young women do not have a high level of menstrual health awareness. A study assessing 250 young girls in Maharashtra, India found that 43.6% of them did not have prior knowledge about menarche. This study revealed that most young girls do not have accurate information regarding menstruation (Dudeja et al., 2016). Another study was in line with that finding. It showed that mothers, rather than acting as the girls' information source, felt that menstruation

was taboo and didn't consider it important to convey information to their daughters (Solehati, Trisyani, & Hermayanti, 2017). The researchers concluded that the lack of awareness was a barrier to implementing safe and hygienic menstrual practices. As a result, young girls would experience shame and lower self-confidence (Dudeja, et al., 2016; Solehati, et al., 2017).

Young women should be educated about menstruation to increase the quality of their menstrual health practices (Tarhane & Kasulkar, 2015). Having comprehensive information can help them prevent physical and psychological problems during their period. Indirectly, it can also eliminate the incorrect beliefs and taboos, so they can discuss menstrual topics unashamedly (Sharma et al., 2013). Health education is one of many ways to improve cognitive involvement. Conceptually, cognitive involvement refers to the level of mental awareness about a particular topic, which, in this case, is menstruation (Yagnik, 2015). Women who have high menstrual health awareness indicate that they consider menstruation a significant aspect of their life. The worth they assign to menstruation shows in their menstrual practices. Therefore, we investigate the effect of health education on menstrual flow monitoring and menstrual health awareness.

## **Methods**

This study applied a quasiexperimental design with only one group pretest and posttest. The data were taken from October to November 2017. The population was 143 female college students from the Economic Study Program in Teacher College at University X. We selected 117 girls as our sample using a purposive sampling technique. The inclusion criteria targeted students who had menarche without ever receiving an education about menstrual flow monitoring. We excluded students who took medications that would interrupt their fertility period. We explained our research procedures to the participants and we asked them to sign a

letter of informed consent. We guaranteed the participants' rights to respect for person, beneficence, non-maleficence, and justice. This study has ethical approval from the Mochtar Riady Institute of Nanotechnology Ethics Committee (MRIN EC), referral number 013/MRIN-EC/ECL/IX/2017. All data were stored on a password-protected device. We developed a menstrual health awareness questionnaire to act as

our research instrument based on Bobak, Lowdermilk, and Jensen (2014). We tested the validity and reliability of the instrument on 30 female students in the English Study Program at University X. The instrument was valid with an *r* value around 0.43 to 0.78 for each item and was reliable with Alpha Cronbach 0.69. The questionnaire consisted of six questions (using the Likert scale) with a range of scores

Figure 1. Menstrual Calendar

*Menstrual Calendar*

Year: \_\_\_\_\_

| Month  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |  |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| Jan    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Feb    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| March  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| April  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| May    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| June   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| July   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| August |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Sept   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Oct    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Nov    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Dec    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |

Notes:  
H: Heavy bleeding (pads fully loaded)  
B: Bleeding (pads filled more than half full)  
S: Spotting (there are only patches, drops, or blood clots on the pads)

Figure 2. Menstrual Monitoring Chart

*Menstrual Monitoring Chart*

The date of menstrual begins: \_\_\_\_\_

| Days                                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|
| Pads                                 |   |   |   |   |   |   |   |   |   |    |    |    |
| Full                                 |   |   |   |   |   |   |   |   |   |    |    |    |
| Half Full                            |   |   |   |   |   |   |   |   |   |    |    |    |
| Patches/ drops/<br>blood clots       |   |   |   |   |   |   |   |   |   |    |    |    |
| complaints<br>during<br>menstruation |   |   |   |   |   |   |   |   |   |    |    |    |

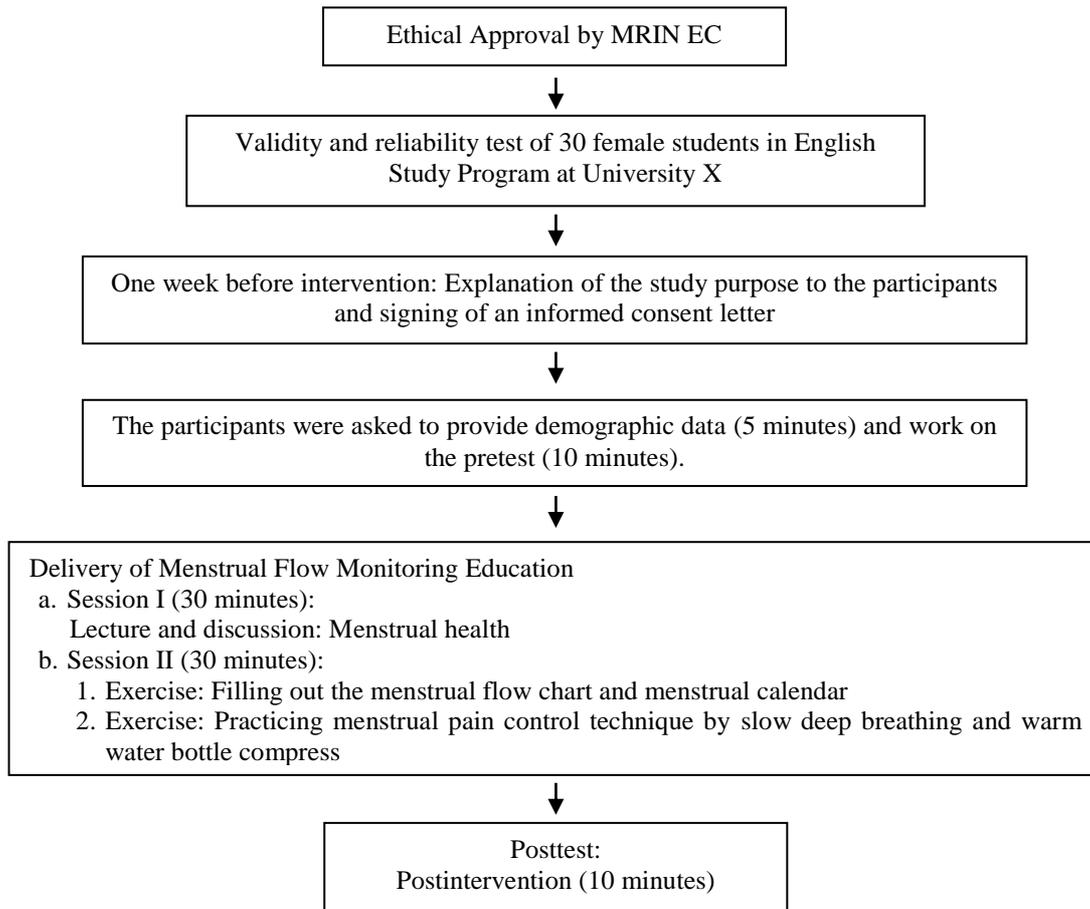


Diagram 1. Research Procedure

from 6 to 30. In questions 2 and 5, the score was reversed. A total score of more than 20 indicated a high menstrual health awareness. We also used the menstrual flow chart (see figure 1) and menstrual calendar (see figure 2) to record the menstrual cycle period, duration of menstruation, blood volume, and characteristics of vaginal discharge. Research procedures are described in Diagram 1. Afterwards, the data were processed through editing, coding, and entering using a computer program. We performed univariate analysis to demographic data as well as the mean score of pretest and posttest for the menstrual health awareness variable. Then we conducted a bivariate analysis using a paired t-test to clarify the significance of differences in the mean of pretest and posttest scores.

## Results

**Characteristics of Participants.** One hundred seventeen female students participated in the study (table 1). They included female students (Entry to Practice/ETP) from the classes of 2014, 2015, 2016, and 2017. The highest percentage of female students (36.75%) came from ETP 2015. A significant portion of female students (35.04%) were 19 years old. The percentage of female students who had experienced their first menstruation by the age of 12 was 36.75%. As much as 71.8% of students had regular menstrual cycles, and the majority (64.1%) experienced complaints during menstruation. Almost all participants had a normal menstrual duration (94.9%) and had a normal menstrual cycle length (97.43%).

**Description of Menstrual Health Awareness Score.** We gave participants a pretest questionnaire before providing them with health education about menstruation. After the education portion, participants practiced filling in the menstrual calendar and menstrual monitoring chart. Based on figure 4, it can be seen that there was a linear increase in the mean score of menstrual health awareness from pretest to posttest.

**The Effect of Monitoring Education on Menstrual Health Awareness.** Table 2 shows that there were significant differences in the menstrual health awareness score from pretest to posttest ( $p= 0.017$ ). This means that education about menstrual flow monitoring increased the menstrual health awareness score significantly. In addition, participants filled out the menstrual calendar and menstrual flow chart based on their menstrual cycle.

Table 1. Characteristics of Participants

| Characteristic                 | n (%)       | Mean  | SD    |
|--------------------------------|-------------|-------|-------|
| Age                            |             |       |       |
| 18                             | 32 (27.35)  | 19.25 | 1.210 |
| 19                             | 41 (35.04)  |       |       |
| 20                             | 32 (27.35)  |       |       |
| 21                             | 7 (5.98)    |       |       |
| 22                             | 4 (3.41)    |       |       |
| 23                             | 1 (0.85)    |       |       |
| Class                          |             |       |       |
| ETP 2014                       | 5 (4.27)    |       |       |
| ETP 2015                       | 43 (36.75)  |       |       |
| ETP 2016                       | 36 (30.76)  |       |       |
| ETP 2017                       | 33 (28.20)  |       |       |
| Age at Menarche                |             |       |       |
| 10                             | 4 (3.41)    | 12.8  | 1.341 |
| 11                             | 9 (7.69)    |       |       |
| 12                             | 43 (36.75)  |       |       |
| 13                             | 29 (24.78)  |       |       |
| 14                             | 18 (15.38)  |       |       |
| 15                             | 12 (10.25)  |       |       |
| 17                             | 2 (1.71)    |       |       |
| Regular Menstrual Cycles       |             |       |       |
| Yes                            | 84 (71.8)   | 1.28  | 0.452 |
| No                             | 33 (28.2)   |       |       |
| Complaints during Menstruation |             |       |       |
| Yes                            | 75 (64.1)   | 1.36  | 0.482 |
| No                             | 42 (35.9)   |       |       |
| Menstrual Duration             |             |       |       |
| Normal (3–7 days)              | 111 (94.9)  | 5.48  | 1.715 |
| Long (>7 days)                 | 6 (5.1)     |       |       |
| Menstrual Cycle Length         |             |       |       |
| Short (<21 days)               | 2 (1.7)     | 28.69 | 5.983 |
| Normal (21–45 days)            | 114 (97.43) |       |       |
| Long (>45 days)                | 1 (0.8)     |       |       |

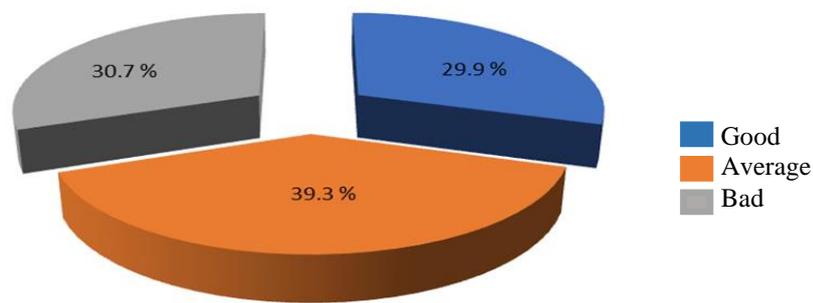


Figure 3. Mean Score of Menstrual Health Awareness

Table 2. Paired t-test Result of the Effect of Menstrual Flow Monitoring Education on Menstrual Health Awareness

| Time     | Mean(SD)      | $\Delta$ Mean | p     | CI 95%      |
|----------|---------------|---------------|-------|-------------|
| Pretest  | 0.72 (3.062)  | 0.55          | 0.017 | 0.100–1.011 |
| Posttest | 21.27 (3.047) |               |       |             |

## Discussion

### Description of Menstrual Health Awareness Score.

The majority of participants were from ETP 2015. Only five students from ETP 2014 participated in this study because they were doing field practice when the data was collected. The most common age for menarche was 12 years old. This is consistent with the average age of menarche of adolescent girls in Indonesia, which is 12–14 years old (Putri & Melaniani, 2013). It is indistinguishable from the average age of menarche in other developing countries, such as India. A study in Nagpur, India reported that the average age of menarche was 12 years old (Tarhane & Kasulkar, 2015). A study conducted in the United States showed a similar result. It reported that 90% of female adolescents in the United States experienced their first menstruation at 12–13 years old (Chumlea et al., 2003; ACOG, 2015).

The results also show that most of the participants already had regular menstrual cycles. More than half of the participants experience complaints during menstruation. This result is in line with Esimai and Esan (2010), which found that 60.5% of students reported pain

during menstruation. About 12.5% of female students stated that the complaint disrupted their academic activities (Esimai & Esan, 2010).

The majority of participants also reported a normal menstrual cycle period, duration of menstruation, and length of menstrual cycle. This is good for young girls. If they experience a cycle disorder in the early years after menarche, it might be indicative of a psychosocial disorder or a pathological problem, which would require diagnosis and treatment (De-Silva, 2010; Tayebi, Yazdanpanahi, Yektatalab, Pourahmad, & Akbarzadeh, 2017).

The results of this study indicate a consistently significant increase in menstrual health awareness from pretest to posttest. This suggests that health education has a substantial effect on the level of menstrual health awareness of participants. We can see that after intervention, the mean score was higher than 20 (increased from the pretest with a significant *p*-value). This result is similar to Kreem et al. (2016); their study also aimed to identify the effects of health education intervention on the awareness and behavior of young women’s menstrual health practices in India. The results indicated

that the level of awareness and healthy practices increased after the intervention. Educational programs can also help young women reduce emotional and physical burdens during menstruation. The mean menstrual health awareness score in this study increased consistently postintervention. This is because we provided menstrual education using several learning methods so that participants could learn the information easily. Using a variety of learning methods when delivering health education can stimulate participants to receive the information using more senses (Samaria, Hapsari, & Pangastuti, 2016).

The education provided in this study combined theory and practice. Female students were taught about menstruation. Then they were shown how to fill out the menstrual calendar and menstrual flow monitoring chart and how to practice pain control using slow deep-breathing techniques and warm water bottles. Female students were asked to demonstrate these practices.

A study conducted in Yogyakarta reported that health education can help women improve their knowledge, attitudes, and behaviors. The time interval between pretest and posttest was needed to help participants receive, understand, and apply new information. The interval in this study was 4–5 weeks postintervention, so that participants had an opportunity to adopt the new behaviors. It has proven beneficial (Trisetiyaningsih, Hapsari, & Widad, 2016). We suggest a serial program of health education for female college students to help them internalize the new knowledge. Female students have a health care facility at their college. However, they have never received health education about menstrual flow monitoring or other related topics. Our results can be a recommendation for stakeholders to provide health education, especially on menstrual health topics. That activity is expected to be useful to increase menstrual health awareness among college students.

**The Effect of Monitoring Education on Menstrual Health Awareness.** In general, the results of this study showed an increased mean score in menstrual health awareness. The results indicate that most students filled out the menstrual calendar and menstrual flow chart completely. This educational activity can help students record their menstrual cycle regularly. This recording is important to help them distinguish normal from abnormal menstrual cycles. Thereby, young women can monitor their menstrual health periodically and seek early intervention if they experience menstrual abnormality (DeSilva, 2010).

## Conclusion

Based on the study results, menstrual flow monitoring education can improve menstrual health awareness among female students. We recommend a continuing education program for female students or other young women to increase their awareness and knowledge of menstruation health. Because this study was conducted in only one private university in Banten, the results do not reflect menstrual health awareness in other populations. We recommend that this research be continued using randomized control trials and larger populations so that more accurate and objective results can be obtained (PJ, HP, INR).

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