

## **THE INFLUENCE OF THE MENSTRUAL CYCLE ON ACADEMIC PERFORMANCE OF ADULT FEMALES AT UNIVERSITY OF ZAMBIA**

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### **ABSTRACT**

The major purpose of the study was to find out the influence of the menstrual cycle on academic performance. The qualitative research design was used. The participants were purposefully sampled. Thus, from all the students who were in the Bachelor of Education Primary (B.Ed. Primary) Programme, only those taking ISE 282: Current Issues in Social Studies were included as participants because the course had the highest number (21) of female students who were all included as participants. A questionnaire, focus group discussion guide and assessment items specifically; a test and an assignment were given at different times within the semester while the examination was given at the end of the semester. Descriptive statistics were used and data was analysed thematically. The major findings were that the majority of the participants who performed well in the assessment items were in the phase - After Menstruation - of the menstrual cycle and this is the phase when the participants were emotionally stable, while the majority of those who performed poorly were in the phase - Before Menstruation - of the menstrual cycle a phase when they were emotionally unstable. The major conclusion is that the second stage of the menstrual cycle - After Menstruation - seemed to positively influence academic performance while the last stage of the menstrual cycle - Before Menstruation - seemed to negatively influence academic performance in terms of marks/grades obtained. It is therefore recommended that adult female students should be taking advantage of the - After Menstruation - menstrual phase by maximising their academic involvement as the phase seemed to enhance academic performance.

Key terms: Menstrual cycle; Academic performance; Emotional state; Adult females; Zambia

### **1.0 INTRODUCTION**

#### **Background**

The menstrual cycle is said to have a profound impact on a woman's life in that, for many adult females the physiological complications of the menstrual cycle often lead to development of secondary psychological and emotional complications. It has been urged that the physical and psychological health issues linked to the menstrual cycle can impair judgment and cognitive processing Cadena (2007). Kennisrotonde (2017) states that the psychological and physical changes before and during the menstruation influence the daily life in adult females.

The menstrual cycle refers to the cyclical development and then shedding of the lining of the uterus. The menstrual cycle is divided into two parts: pre-ovulation and post-ovulation. The average duration of a complete menstrual cycle is 28 days (though healthy cycles can run from 21 – 36 days). Day 1 of the menstrual cycle is the day bleeding begins. Bleeding or menstrual flow lasts about three to five days. Ovulation (release of the egg from the ovary) takes place in the middle of the menstrual cycle e.g. for a woman with a 28 - day cycle, ovulation takes place on the 14<sup>th</sup> day. The pre-ovulation days – days between end of menstruation and ovulation – were divided into two parts namely: After Menstruation and Before Ovulation. The post-ovulation days were also divided into two parts namely: After Ovulation and Before Menstruation. Thus in this study the menstrual cycle had the following phases; Menstruation, After Menstruation, Before Ovulation, Ovulation, After Ovulation and Before Menstruation. The menstrual cycle is managed by sex hormones namely: oestrogen and progesterone. The levels of the two sex hormones fluctuate throughout a woman's monthly menstrual cycle.

Cadena (2007) argues that, a woman's hormonal balance is the very core by which she is able to perform day in and day out. Even though hormones do not determine ability, they can improve ability when the right hormones are at peak during high stress periods. One of such hormones is oestrogen. This hormone plays a key role in the management of cognitive processing.

Therefore, the focus of this study was the influence of the menstrual cycle on academic performance.

## **Problem Statement**

The menstrual cycle has been stated to influence the everyday life of an adult female (Cadena 2007). Lombroso and Ferrero cited in Sakala (1998) for example, found that the menstrual cycle was one of the factors linked to female criminality in that 71 out of 80 women were having their menstrual periods when they were arrested for resistance against public officials, furthermore female inmates were also found to act aggressively during their pre-menstrual phase. Some studies have also reported that menstruation has a negative influence on academic performance (Sommer 1992). For authors like (Khamdan, et al. 2014 and Dalton 1969) academic performance is influenced by two phases of the menstrual cycle namely – During Menstruation and Before Menstruation. In addition, Bernstein (1977) and Khamdan et.al (2014) state that, research on academically advanced women show that their scholastic performance is less likely to be affected by the menstrual cycle.

The literature reviewed fall around the following four categories, where the menstrual cycle is viewed as having; a) no impact (Hollingworth, 1914), b) insignificant impact (Bernstein 1977), c) minor influence (Walsh et.al 1981) and d) negative impact (Sommer 1992, Khamdan 2014) on academic performance.

The studies accessed on menstruation in Zambia focused on hygiene amongst schoolgirls (Hellejoy 2017; Chinyama et al 2019; Nanda and Lupele 2016) The findings in the studies reveal that in many instances the girls normally did not attend school during the days that they were menstruating due to lack of appropriate sanitation. However, for a few schools where pain killers and pads were given, the girls did not miss school as a result of menstruation (Hellejoy 2017).

The literature reviewed did not show how the menstrual cycle influences academic performance of students at various levels of education in Zambia. This study therefore specifically focused on the influence of the menstrual cycle on academic performance of adult female students at the University of Zambia.

### **Purpose of the study**

The purpose of the study was to investigate the influence of the menstrual cycle on academic performance in adult females.

### **General Objective**

To establish the effects of the different stages of the menstrual cycle on academic performance of adult females.

### **Specific Objectives**

1. To determine the academic performance of adult females during the different stages of the menstrual cycle.
2. To establish the emotional state of adult females during the different stages of the menstrual cycle.

### **Research questions**

1. What is the effect of the menstrual cycle on academic performance of adult females?
2. What is the emotional state of adult females during the different phases of the menstrual cycle?

### **Significance of the study**

According to Kasonde Ngádu (2013) significance of the study is the section in a research that shows the relevance of the study for researchers, practitioners and policy makers in the country. In this regard, it is hoped that the findings of this study will be used by academicians, lecturers and policy makers in their analysis of female academic performance. The adult females may as well use the research findings for their own improvements in academic life. The study may also shed more light on female academic performance.

### **Delimitations**

Delimitations are those characteristics that limit the scope and define the boundaries of the study (<http://libguides.use.edu/writingguide/limitations&s-lg-guide-main>). They are in the researcher's control. Delimiting factors include choice of objectives, research questions, variables of interest, theoretical perspectives adopted and choice of population for investigation. The study was restricted to only ISE 282, 2009 registered students at the University of Zambia because of the sensitive nature of

the study. The data collection methods used; focus group discussions and questionnaire could have had an effect on the data that was collected because not all people feel free to provide information

### **Operational definitions**

Academic performance:	Refers to the marks or grades attained in the assessment items.
Menstrual cycle:	The repeated monthly biological changes of an adult female.

## **2.0 LITERATURE REVIEW**

The menstrual cycle in human beings has been the focus of many studies for many years. Of the different stages of the menstrual cycle, menstruation has been linked to a number of variables which include fatigue (Dalton, 1972); pain of some kind (Levitt and Lubin, 1967; Dalton, 1972); depression (Coppen and Kessel, 1963); anxiety and hostility (Ivey and Bardwick, 1968). However, the following were said to occur more often during and prior to menstruation: serious accidents (Dalton, 1960b); suicide and criminal acts (Moos, 1969; Sakala 1989); incidences of psychiatric disturbance (Janowskyetal, 1969).

Since the beginning of the last century the topic of the influence of menstruation on academic performance has seen a lot of research and debate such that there is no one agreed stance. In an attempt to understand many aspects that seem to be connected the menstrual cycle, many studies have only divided the menstrual cycle into three phases – menstruation (days of blood discharge), paramenstrual (the 4 days prior to menstruation onset and the first 4 days of menstruation) and intermenstruum (the other days of the cycle). Bernstein (1977) stated that poor mental performance was common during menstruation and for several days prior to onset of menstruation.

Whereas many earlier reviews indicated that the menstrual cycle had virtually no impact on objectively measured cognitive performance (Sommer 1982a, 1983, Hollingworth's dissertation 1914, Lough's dissertation 1937, Seward 1944 and Walsh etal 1981), Walker, 1992; Walsh etal, 1981 found that the menstrual cycle had minor influence on academic performance. Bernstein (1977) also found that the difference between paramenstrual and intermenstrual performance for aptitude and motivation was insignificant.

Other studies have also shown that the premenstrual and particularly menstruation stages have a negative impact on performance (Sommer 1992) and Khamdan et al. (2014) urged that academic performance was affected by menstruation.

Boyle (1997) also found that menstrual cycle variables (moods and symptoms) played a discernible role on academic learning outcomes thus contributing both positively and negatively to performance.

## **3.0 METHODOLOGY**

### **Research design**

The study was mainly qualitative and was a short case study of a group of female students.

### **Target population**

The target population comprised all students in the school of education pursuing the Primary Degree Programme at the University of Zambia.

### **Sample size**

The sample for this study comprised 21 female students taking ISE 282 in 2009 in the School of Education at the University of Zambia.

### **Sampling techniques**

The respondents were purposively sampled. This method of sampling was preferred among others because it only targeted people who were expected to have adequate information on the subject for this study. Kombo and Tromp (2006) state that the power of purposive sampling lies in selecting information rich cases for in-depth analysis related to the central issues under study. In this case, the female students were believed to have rich knowledge, wide understanding and experience about menstrual cycle.

### **Research Instruments**

In collecting data for this study a questionnaire and focus group guide were used. In addition, grade/marks attained in the test, assignment and examination with an indication of the menstrual stage at the time of the activity were used.

### **Data Analysis**

The study was mainly qualitative. However, both qualitative and quantitative data were utilized in analysing the data. Descriptive statistics and thematic categorization procedures were used to analyse the data.

### **Ethical considerations**

Considering the nature of the study, in that it was dealing with menstruation, ethical issues were highly considered. Participants were informed about the nature and purpose of the study and informed consent was sought before data was collected from them. Participants were also assured of high levels of confidentiality and were informed that the information that was to be gathered was purely for academic purposes.

## **4.0 PRESENTATION OF FINDINGS**

### **Age range of participants**

Table 1: Showing the age ranges and the number of participants within

Age range	Frequency
31-35	3
36-40	6
41-45	8
46-50	4
Total	21

The age range of the participants was between 31 years and 50 years though the majority (8) participants were aged between the ages of 41- 45, followed by 6 who were in the age range of 36-40, then 4 who were in the age range of 46-50 and lastly 3 who were in the age range of 31-35.

### Phase of the menstrual cycle when participants felt very confident

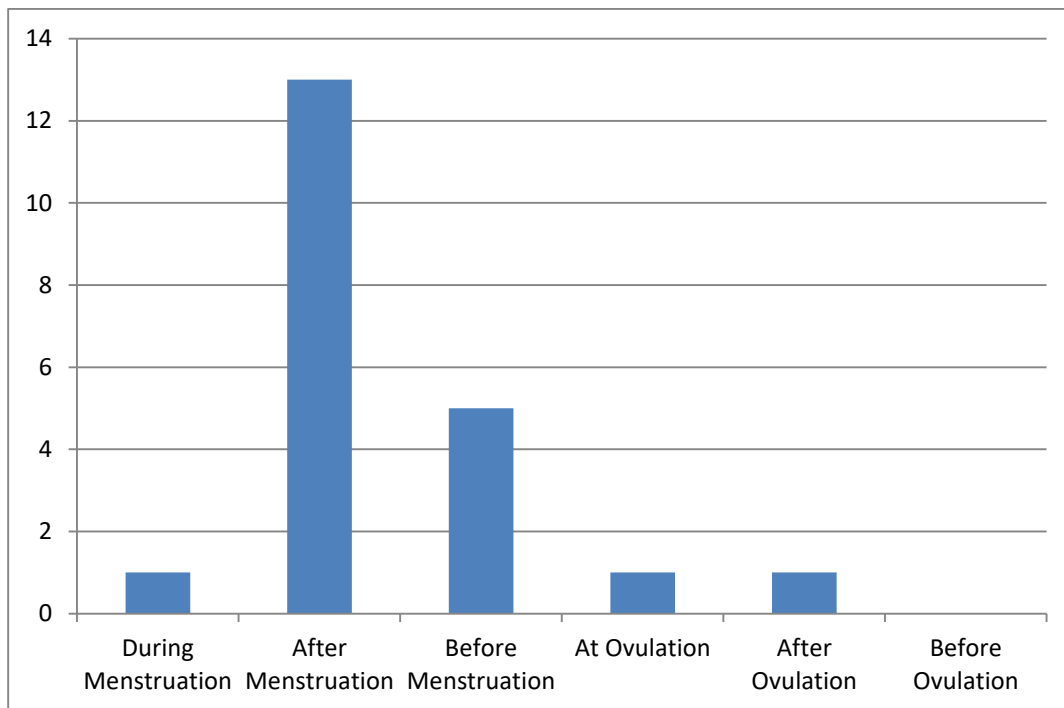


Figure 1: Showing number of participants for different phases when they felt confident

Most of the participants 13 out of 21 indicated that they felt confident during the phase After Menstruation, while for 5 participants indicated the phase – Before Menstruation and 1 participant for each of the following phases – During Menstruation, At Ovulation and After Ovulation.

### Phase of the menstrual cycle when participants were more organised

Table 2: Showing the participant frequencies for the menstrual phases when they were organised

Menstrual Stage	Frequency
Before ovulation	01

After ovulation	00
At Ovulation	03
Before menstruation	02
After menstruation	13
During Menstruation	02

Most of the participants, 13 out of 21 indicated to be more organized in the phase - after menstruation, while for 3 participants indicated - At Ovulation, 2 Before Menstruation, 2 During Menstruation, 1 participant - Before Ovulation.

#### **Phase of the menstrual cycle when participants enjoyed studying**

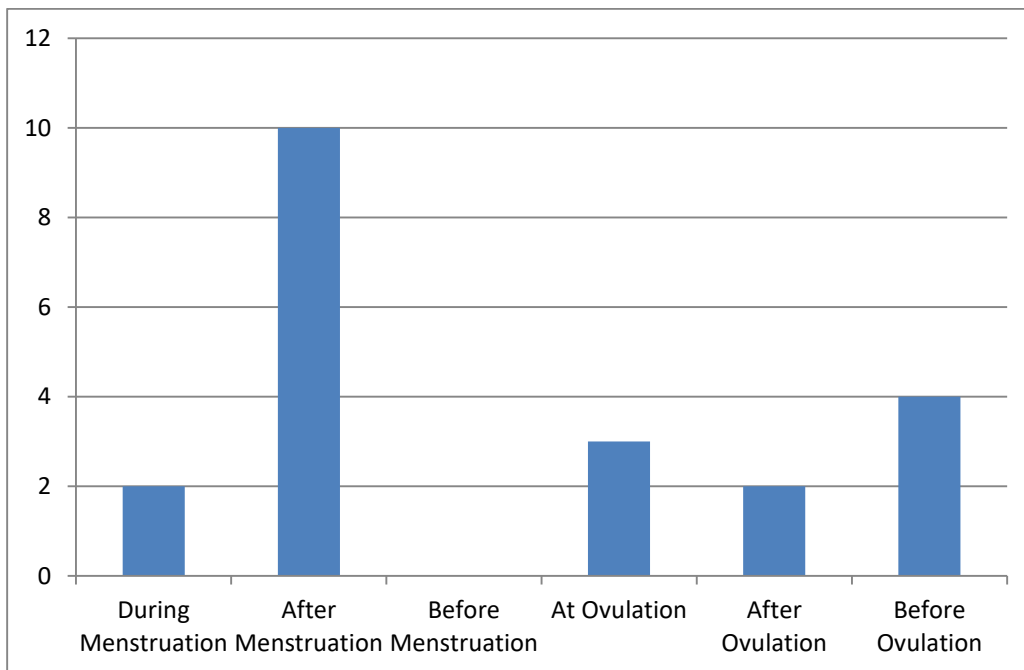


Figure 2: Showing the participant frequencies for the menstrual phases when they enjoyed Studying

The phase during which most of the participants 10 out of 21 enjoyed studying was - After Menstruation, followed by 4 who indicated the phase - Before Menstruation, then 3 participants indicated the phase - At Ovulation and lastly 2 each for the phases - During Menstruation and After Ovulation.

#### **Phase of the menstrual cycle when the participants easily understand academic work**

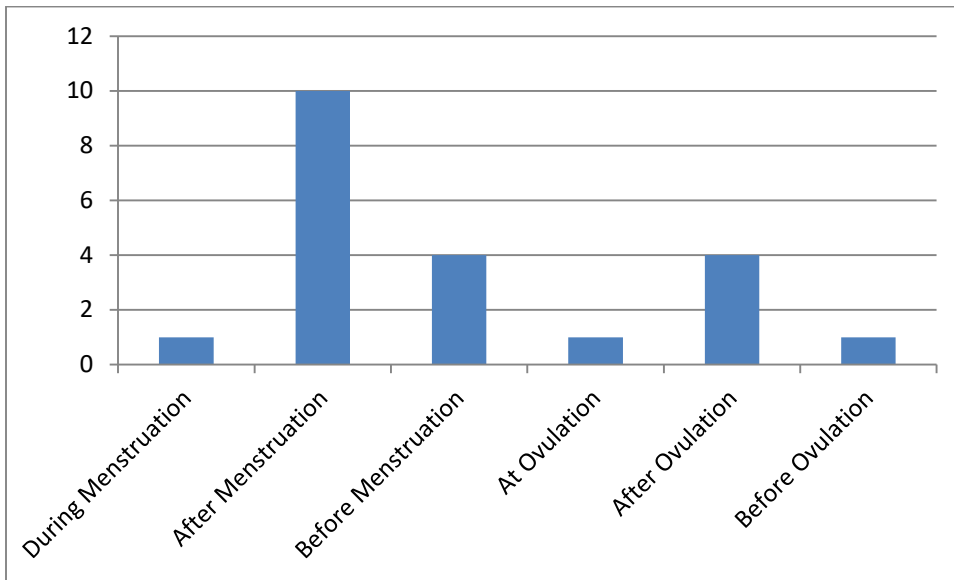


Figure 3: Showing the menstrual phases and frequencies when participants easily understood academic work

The majority of the participants 10 out of 21 indicated that they easily understood academic work during the phase after menstruation followed by 4 each that stated the phases – Before Menstruation and After Ovulation while 1 each for three phases – During Menstruation, At Ovulation and Before Ovulation.

#### **Stage of the menstrual cycle when concentration on academic work was easy**

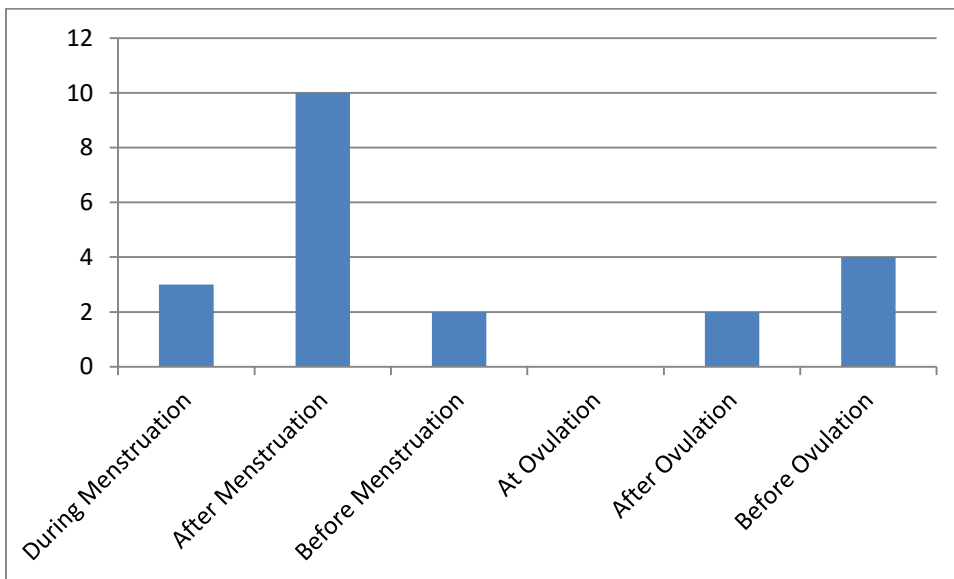


Figure 4: Showing menstrual phases and participant frequencies when concentration on academic work was easy

Most of the participants 10 out of 21 indicated that they easily concentrated on academic work during the phase - After Menstruation, followed by 4 who indicated that they easily concentrated during the



phase Before Ovulation, 3 indicated During Menstruation and 2 each for Before Menstruation and After Ovulation.

**Phase of the cycle when the participants felt academically at their best**

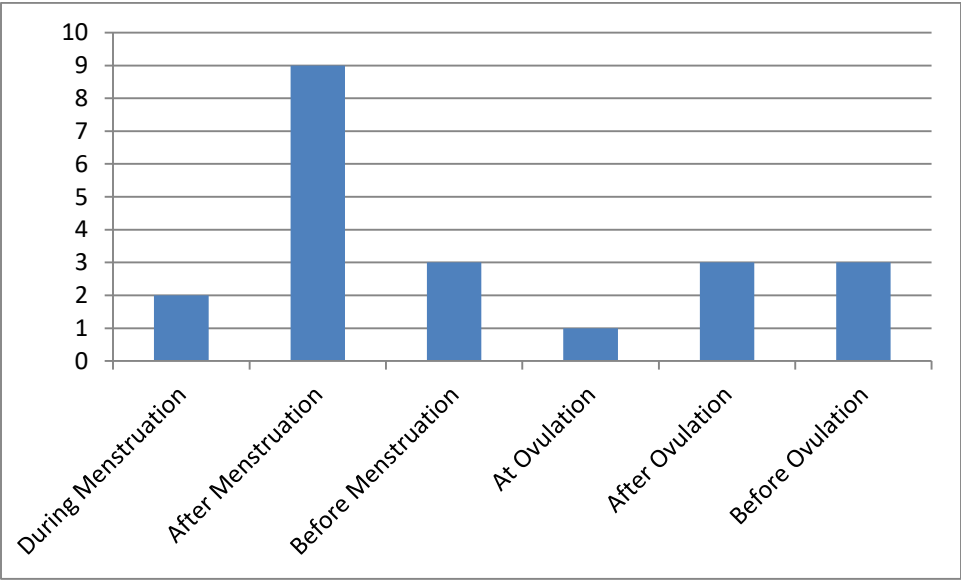


Figure 5: Showing menstrual phases and participant frequencies when they felt academically at their best

The majority 9 out of 21 participants felt they were academically at their best during the phase – After Menstruation. This was followed by 3 each under three phases – Before Menstruation, After Ovulation and Before Ovulation – while 2 indicated the phase During Menstruation and 1 participant indicated the phase – At Ovulation.

### Phase when they found group work most enhancing

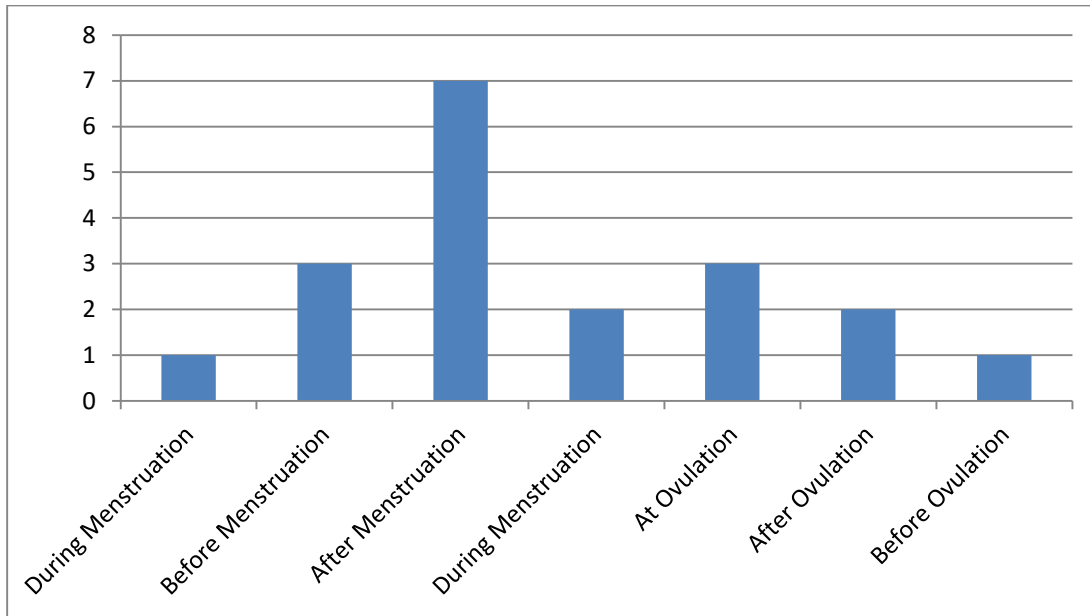


Figure 6: Showing menstrual phases and participant frequencies when group work was enhancing

The phase After Menstruation was indicated as the phase when the majority 7 of the participants found group work most enhancing. This was followed by 3 participants each indicating the phases – Before Menstruation and At Ovulation, then 2 participants each indicating the phases – During Menstruation and After Ovulation and lastly 1 participant each indicating the phases – During Menstruation and Before Ovulation.

### Phase of the menstrual cycle when participants felt most irritable

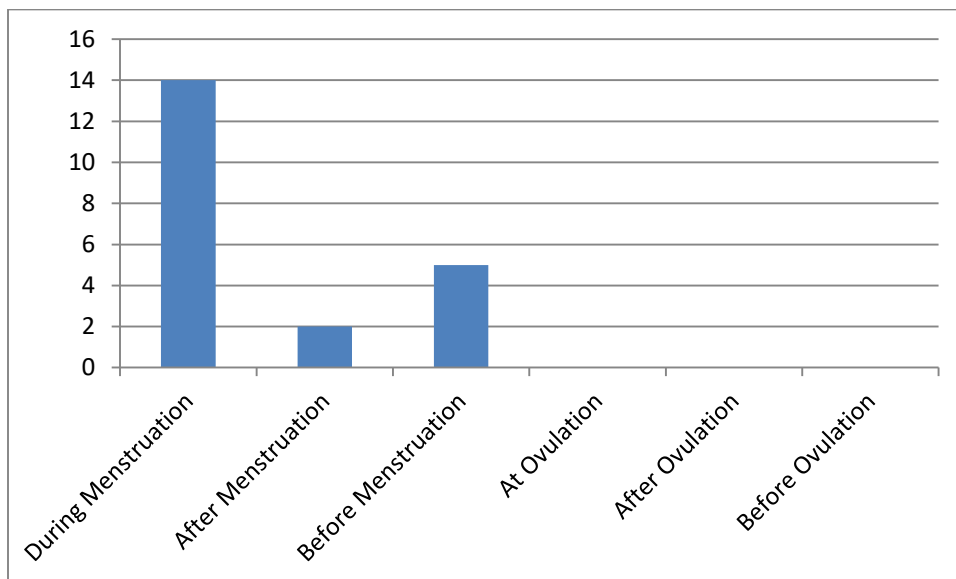


Figure 7: Showing menstrual phases and participant frequencies when they felt most irritable

Most of the participants 14 out of 21 stated to be most irritable in the phase - During Menstruation. 5 participants indicated being most irritable in the phase – Before Menstruation and 2 participants stated the phase – After Menstruation.

#### Phase of the menstrual cycle when participants were easily angered

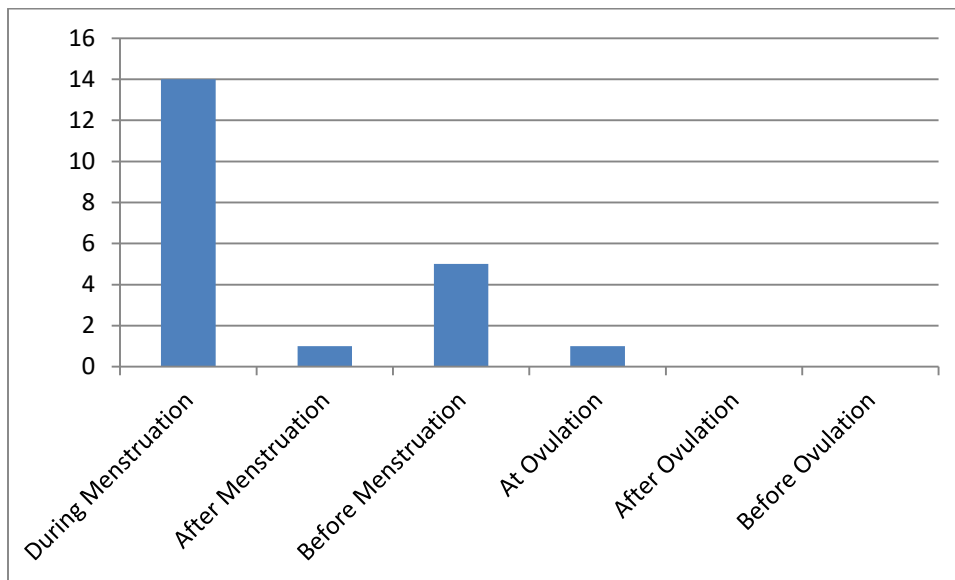


Figure 8: Showing menstrual phases and participant frequencies when were easily angered

Most of the participants 14 out of 21 indicated that they were easily angered in the phase - During Menstruation, while 5 indicated the phase Before Menstruation and 1 each for the phases - After Menstruation and At Menstruation.

### Phase of the menstrual cycle when participants were very emotional

Table 3: Showing menstrual phases and participant frequencies when they were very emotional

Menstrual Stage	Frequency
Before ovulation	02
After ovulation	01
At Ovulation	00
Before menstruation	07
After menstruation	00
During Menstruation	11

The majority of the participants, 11 out of 21 indicated that they got very emotional in the phase During Menstruation, followed by 7 participants who indicated the phase Before Menstruation. 2 participants indicated the phase Before Ovulation and 1 who indicated the phase After Ovulation.

### Phase of the menstrual cycle when participants felt very disorganised

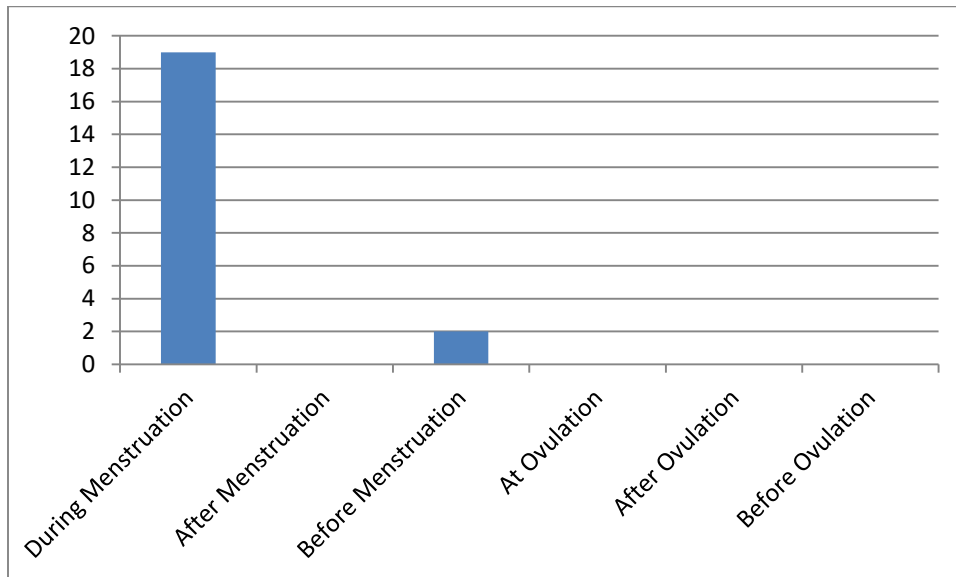


Figure 9: Showing menstrual phases and participant frequencies when they felt much disorganised

Almost all the participants 19 out of 21 indicated that they felt very disorganised during menstruation and 2 participants indicated the phase Before Menstruation.

### Phase of the menstrual cycle when participants felt lonely

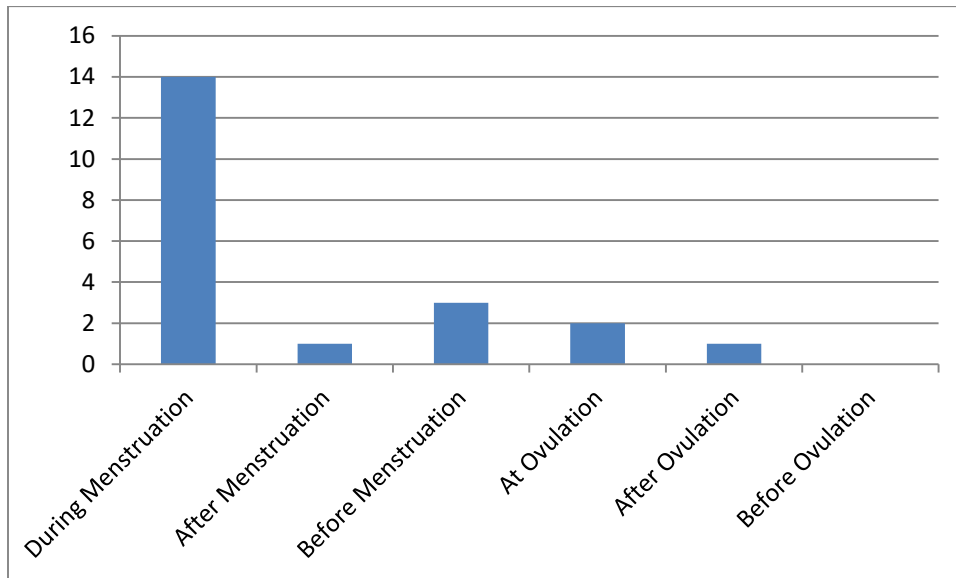


Figure 10: Showing menstrual phases and participant frequencies when they felt lonely

The period when the majority of the participants 14 out of 21 felt lonely was the phase During Menstruation. 3 indicated the phase Before Menstruation, 2 indicated the phase At Ovulation and 1 each the phase After Menstruation and After Ovulation.

### Phase of the menstrual cycle when participants wanted to be left alone

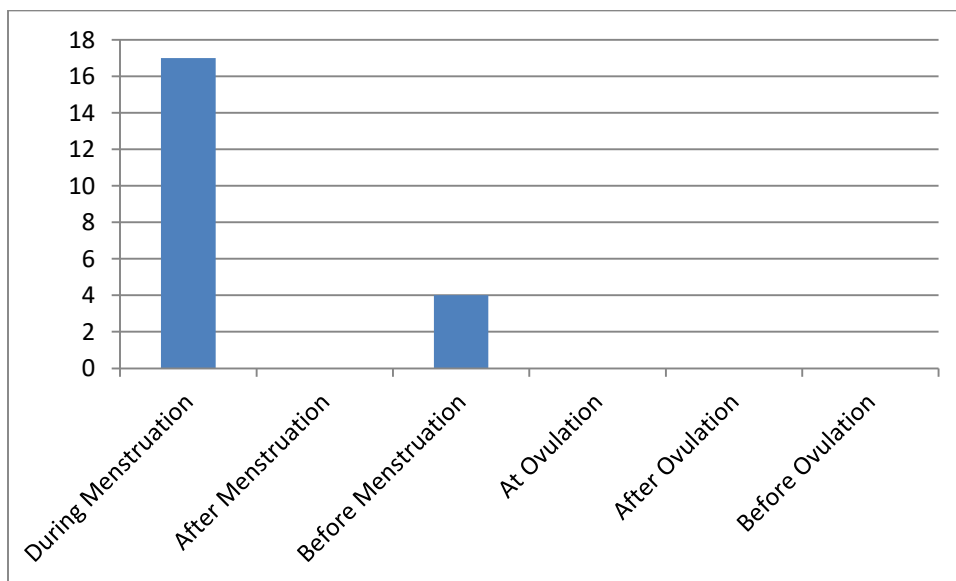


Figure 11: Showing menstrual phases and participant frequencies when wanted to be left alone

Most of the participants 17 out of 21 indicated that they wanted to be left alone when they were in the - During Menstruation phase and 4 indicated the phase - Before Menstruation.

#### Phase during which participants got easily disrupted from academic work

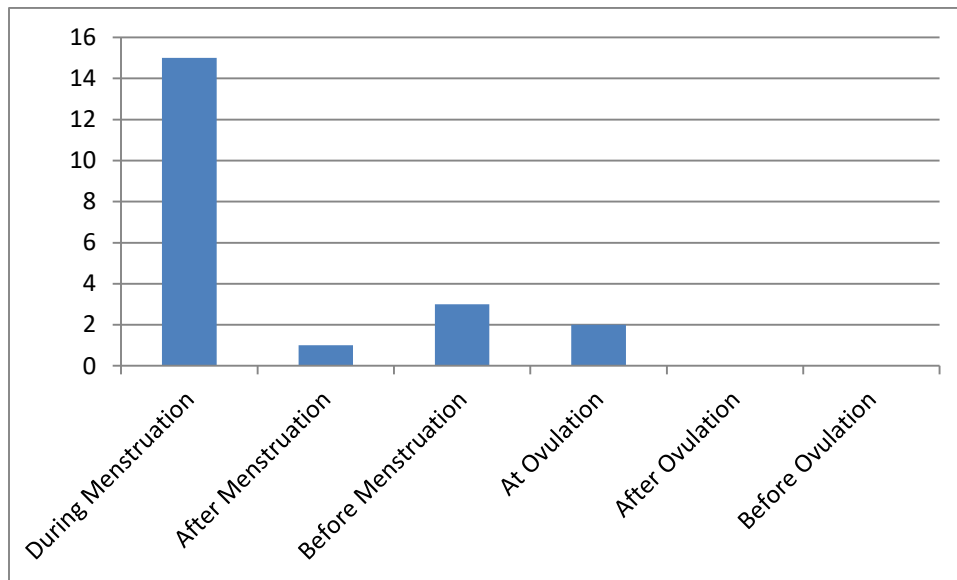


Figure 12: Showing menstrual phases and participant frequencies when they got easily disrupted from academic work

Most of the participants 15 out of 21 indicated that they got easily disrupted from academic work in the phase - During Menstruation. This was followed by 3 participants who indicated the phase - Before Menstruation, then 2 participants who indicated the phase - At Ovulation and lastly 1 participant indicated the phase - After Menstruation.

#### Phase when participants' academic performance was at its worst

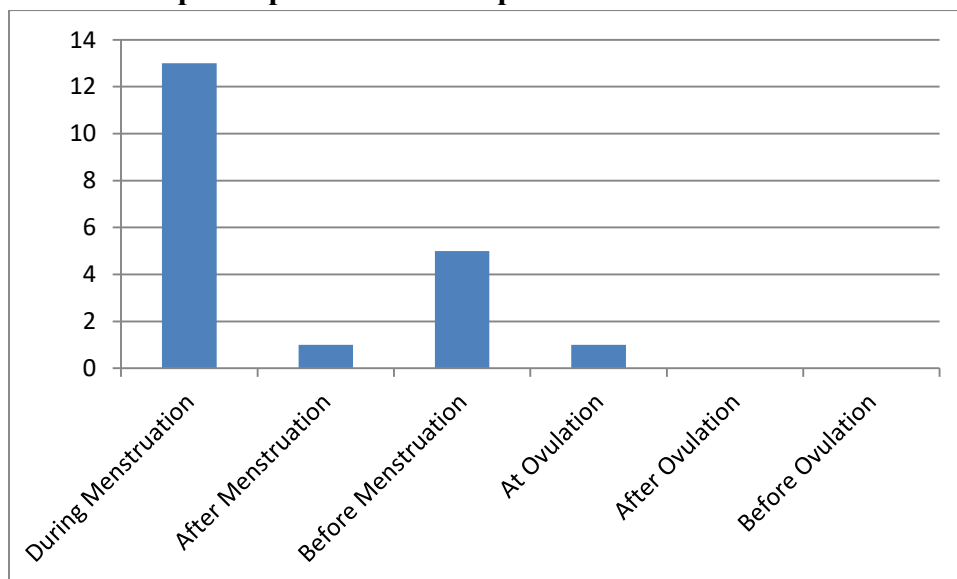


Figure 13: Showing menstrual phases and participant frequencies when their academic performance was at its worst

Most of the participants 13 out of 21 indicated that they were academically at their worst in the phase - During Menstruating, 5 indicated the phase - Before Menstruation and 1 each indicated the phases - After Menstruation and At Ovulation.

#### Phase when group work was most irritating

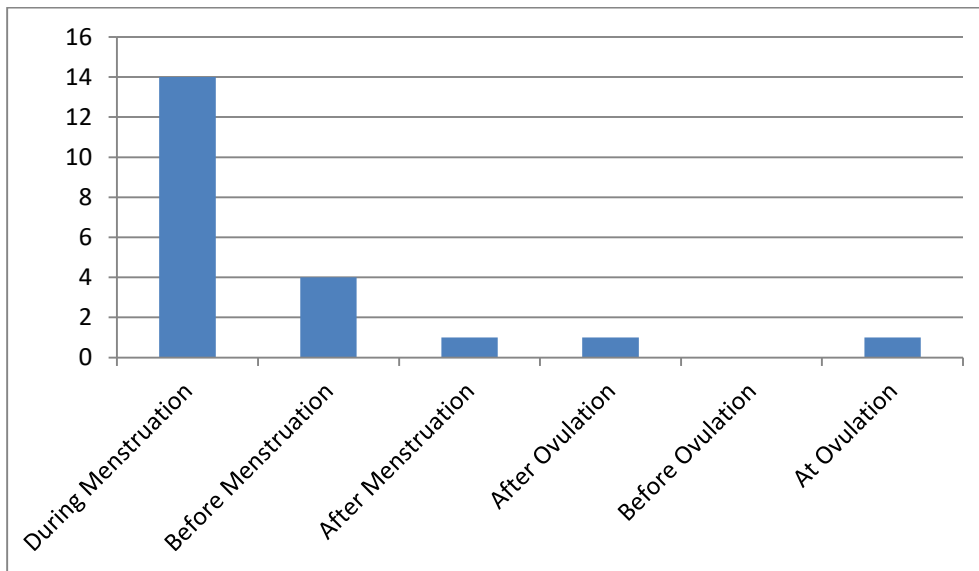


Figure 14: Showing menstrual phases and participant frequencies when group work was most irritable

Most of the participants 14 out of 21 indicated that group work was most irritating in the phase - During Menstruation, 4 indicated the phase - Before Menstruation and 1 each indicated the phases - After Menstruation, After Ovulation and At Ovulation.

It appears that three phases of the menstrual cycle seem to be connected to emotional changes in adult females namely; After Menstruation, During Menstruation and Before Menstruation.

#### During Menstruation

This phase of the menstrual cycle was stated by the majority of the participants when they felt academically at their worst, most irritable, easily angered, very emotional, wanted to be left alone and easily disrupted from academic work.

One of the participants stated that, *“During menstruation I fail to concentration on academic work because of the flows so many times I miss lectures especially the second and third days as the flow is heavy”*

Another participant stated that, *“During menstruation, I don’t concentrate in lectures because mostly would be thinking of changing and cleaning myself”*.

Another participant stated that, *“I want much time to myself during menstruation because I want to change frequently and because of the bad odour”*.

### **Before Menstruation**

This phase ranked second to During Menstruation for all the issues where the phase During Menstruation ranked first.

One of the participants stated that, during this phase *“I have terrible period pains such that I fail to concentrate on academic work, I also get very cranky”*.

Another participant stated that, during the phase *“Before menstruation – I easily loss my temper and become abusive to those close to me”*.

Another participant stated that during this phase *“I don’t understand myself because I get angry even by things that I do not during other phases of the menstrual cycle. I shout and hit my children and regret afterwards. I fail to control myself during this phase”*.

Another participant stated that during this phase *“I am very disorganised during this phase and it troubles me as to why”*

### **After Menstruation**

This is the phase of the menstruation cycle stated by the majority of the participants when they felt academically confident, organised, enjoyed studying, easily understood and concentrated on their studies. Thus, they were emotionally stable.

One of the participants stated that it was during this phase when, *“I enjoy company of my friends both male and female. I am at easy with myself”*.

## **Academic Performance**

### **Assessment 1 (Test)**

In the case of the test assessment, of the 4 participants who got the highest grade which was B+, 3 were in the phase – After Menstruation. Of the 6 participants who got the least scores 4 were in the phase – Before Menstruation.

### **Assessment 2 (Assignment)**

In the case of the assignment item, of the 2 participants who got the highest grade which was B+, 1 was in the phase – After Menstruation. There were 2 participants who got the lowest grade of D and both were in the phase – Before Menstruation.

### **Assessment 3 (Exam)**



However, there were slight variations with the third assessment item which was the examination, in that of the 3 participants who got the best grade of B+, 2 were in the phase - During Menstruation and 1 was in the phase - Before Menstruation. Nevertheless, the participant who got the lowest grade which was a C was in the phase – Before Menstruation.

## **5.0 DISCUSSION**

The study findings showed that academic performance was influenced by two phases of the menstrual cycle namely - After Menstruation and Before Menstruation. Thus;

- i) The phase - After Menstruation - impacts positively on academic performance. This was supported by the responses of the participants in that the phase recorded the highest in terms of when the participants felt academically confident, organised, enjoyed studying, easily understood and concentrated on their studies. Thus they were academically at their best during this phase of the menstrual cycle.
- ii) The phase - Before Menstruation - impacts negatively on academic performance. This was further supported by the responses of the participants in that the phase was recorded second highest after the phase - During Menstruation - in terms of the phase when participants felt that their academic work was at its worst, were most irritable, easily angered, very emotional, wanted to be left alone and easily disrupted from academic work. These responses were attested to by the focus group discussions with participants.

Generally, when the performance in rank form of the participants who were in the phases – After Menstruation and Before Menstruation - during the test and when the assignment was handed in, were compared, better rank was when the participant was in the phase – After Menstruation.

However, the phase - During Menstruation - was indicated as the period during which the participants felt irritated, uncomfortable, easily lost temper, lacked concentration, felt unclean, produced bad odour, did not feel like mixing with others freely and failed to carry out some academic activities. Despite the indicated sentiments, none of the participants who were in the stated phase during the assessment activities got the lowest mark/grade.

In the case of examination results, the findings of the study seem to be in agreement with the Bernstein (1977) sentiment that academic performance in college women did not show menstrual decline and with Walsh et al (1981) who came to a conclusion that the menstrual cycle did not handicap examination performance.

However, the findings in the examination performance differed with those by Sommer (1992) and Khamdan HY, et al. (2014) who found that menstruation had a negative impact on academic performance. However, the findings in reference to the test and assignment were in agreement with those of Sommer (1992) who found that the phase - Before Menstruation - had a negative impact on performance and to some extent with the findings by Dalton (1969) in which the disparity was the inclusion of the phase - During Menstruation – as also having a negative impact on performance.

## 6.0 CONCLUSION

The findings seem to suggest that there are two phases of the menstrual cycle that influence academic performance namely After Menstruation and Before Menstruation. The phase After Menstruation seems to positively influence academic performance as it is during this phase that the participants felt encouraged, emotionally stable and motivated to concentrate on academic work while the phase Before Menstruation seems to negatively influence academic performance as it is during this phase that the participants felt emotionally unstable and failed to concentrate on studies as they were irritable and got easily angered.

## 7.0 RECOMMENDATION

Adult female students should be taking advantage of the - After Menstruation – phase of the menstrual cycle by maximising their academic involvement as it seemed to enhance academic performance.

Educators of adult female students should be aware of the influence of the phases of the menstrual cycle on academic performance.

Policy makers need to bear in mind the influence that the menstrual cycle has on academic performance in adult females as they formulate policies.

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