Relation Between Stress And Menstrual Cycle At 18-21 Years Of Age

Sri Hazanah[1], Rahmawati Shoufiah[2], Nurlaila[3]

[1)2)3)]Department of Obstetrics Health Polytechnic East Borneo

Abstract:- Menstrual cycle is ideally regular in every months in the length of time about 21-35 days at each menstrual period. Menstruation on women is regular after 18 years old. Result of the research on 4000 women is that there are only 3% of who experience regular menstrual cycle. Almost all women experience irregular menstrual cycle from a month to another. Many factors affect irregular menstrual cycle, one of them is stress. The aim of the research is to find out relation of stress and menstrual cycle on inclusive line students of 18-21 years old at 3rd Diploma of Obstetrics Course of Study in Balikpapan Health Polytechnic, Ministry of Health East Borneo. The research is characterized by *analytic descriptive* with *cross sectional* research design. Population of the research are obstetrics students of 18-21 years old with 197 number of students. Sampling is by *stratified random sampling* method with 132 persons. Data collection method is using questionnaire as data collection instrument. Data analysis technic is by using *chi square* (X^2) statistics test with CI =95% and α = 0,05. Statistics calculation is using computer program. Result of the research shows that there is significant relation between stress and menstrual cycle with the value of $P_{value} = 0,001 <$ the value of α = 0,05 with X^2 calculation = 14,915 > X^2 table= 3,841. Conclusion: most of inclusive line students of 18-21 years old at 3rd Diploma Obstetrics Course of Study in Balikpapan are stressful.

Keyword:- Stress, Menstrual Cycle, 18-21 Years Of Age

I. BACKGROUND

Adolescence is one of human life stages that is often called as puberty, a transition period from childhood to adult. The most important event in puberty period is the emergence of the first menstruation (*menarche*) then menstruation will emerge in a cycle (Manuaba, 2009). WHO determines the limit of adolescence 12 to 24 years old (Wijaya, 2009). Adolescence classification is divided into 3 stages, those are early adolescence (13-14 years old), mid-adolescence (15-17 years old) and late adolescence (18-21 years old) (Dariyo, 2004).

Menstruation is a physical change in woman's body that happens periodically and influenced by reproductive hormone. Menstrual period is important in reproduction, this period usually happens monthly between puberty and menopause ages. Women experience menstrual cycle on average happens about 28 days (Tina, 2009).

Ideally menstrual cycle is regular in every months with the length of time about 21-35 days at each menstrual period. Normal menstrual cycle physically describes that reproductive organs tend to be healthy and have no problem. The hormonal system is good, shown by ovum that continuously produces and the menstrual cycle is regular, thus with normal menstrual cycle it will be easier for a woman to get the pregnancy, arrange routine activity and calculate fertile period (Hestiantoro, 2007).

Menstruation on women is regular after 18 years old (Ma-nuaba,2009). Sheldon states that result of the research to 4000 women, in fact it is only 3% of them who have regular menstrual cycle. Almost all women experience irregular menstruation cycle from a month to another, there must be little changes (Beri-Beri, 2010). Irregular menstrual cycle does not have particular pattern like extended menstrual cycle or more than 35 days (*oligomenore*), short menstrual cycle or less than 21 days or in a month experience menstruation more than once (*polimenore*), even does not menstruate for 3 months (*amenore*) (Hestiantoro, 2007).

Short and long cycles, both show unwell metabolism and hormonal system. The impact is, it becomes more difficult to be pregnant (*infertility*). Short cycle occurs when a woman can experience an ovulation since ovum does not really ripe, hence it is difficult to be fertilized. Long cycle on women shows that ovum is rare to be produced or that a woman experiences a quite long infertility. If ovum is rarely produced, it means fertilization will be rare to occur. Irregular menstrual cycle also gives women difficulty to find out when the fertile period is and when it is not. Women who have 28 day-cycle are only about 10-15% (Hestiantoro, 2007).

The result of research study in Japan performed by Fujiwara (2007) to 522 women of 18-20 years old who studied at Ashiya College obtained that 33% of women experienced irregular menstruation and

66,7% reported normal menstruation. Experts' opinions in Epigee, 30% of reproductive age women experienced irregular menstruation (Epigee, 2009).

Some of cases in Indonesia show that extended menstruation or disorder in menstrual cycle can occur to woman since adolescent (who have got menstruation) until pre-menopause (ahead of the end of menstrual period). The occurrence can be experienced by adolescent girls and young women about 20%, while 40% of middle age women (more than 40 years old) caused by stress (Lee, 2011). An interesting small study reported that high failure pregnancy incidents on woman was caused by high stress level and extended menstrual cycle (Riantori, 2008).

The cycle difference is determined by some factors, one of them is stress which is the cause of the occurrence of menstrual disorder. Besides, disturbed hormone function, systemic abnormality, thyroid, proklatin hormone, and over proklatin hormone also cause the occurrence of menstrual cycle disorder (Hestiantoro,2007).

Wangsa (2010) explains that stress is a condition which the body is disturbed by psychological pressure. The research performed by Walker (2002) on 60 adolescents reported that the main cause of stress (tension) and the problem on adolescents lead from their relationship with friends and family, pressure and expectation from themselves and other people, pressure at school by teacher and homework, economic pressure and tragedy in their life, for example death, divorcement, and illness of their family member (Nasution,2007).

Stress itself does not always mean negative, that is why, for some people and in some places, stress sometimes precisely bears dynamic situation that motivates someone to get high achievement (Wangsa, 2010).

Human experiences stress from three main sources, such as environment, physic, and mind. Environmental stress includes noise, density, time pressure, achievement standard, threat of safety and dignity, also adaptation with friends, spouse, family changes. Physical stress (from body) among others is a change of body condition, such as adolescence, menstruation, aging process, accident, malnutrition, sleep deprivation. Stressful mind is self and environmental-defined which mind interprets and translates changes of experience (Gunarya, 2008).

Dr.Selye's research and other researchers prove that stress greatly affects the development of human disease. The experts state that 70-75% of all diseases at the end is related to stress. Juliet Schor in Hager states that 30% of all adults experience high level stress. Three-quarters of all American women at least experience stress that affects the occurrence of irregular menstrual cycle (Susanti, 2008).

Some results of studies of nursing students at Kusyu University state that as many as 34% of who experience irregular menstruation because of stress (Onimura in Sukhraini, 2010), the very first jailed woman state that as many as 30% of who experience irregular menstruation because of stress (Allsworth and friends, 2007 in Sukhraini, 2010), then research in Japan, from 221 respondents with stressful condition there are 63% students who experience irregular menstruation (Yamamoto and friends, 2009 in Sukhraini, 2010).

Research about relation of stress and menstruation cycle disorder has ever been performed by Atik Mahbubah in Sidoharjo. Result of the research obtained that from 74 respondents, most of respondents' (64,9%) menstrual cycle is normal, those are *polimenore* 23,1%, *oligomenore* 69,2% and *amenore* 7,7% (Mahbubah,2006). Besides Atik Mahbubah, Sukhraini also performed research about relation of stress and irregular menstrual cycle in Medan in 2010. The research also shows that from 110 sampling persons who experience stress, there are 33 persons (30%) experience irregular menstrual cycle (Sukhraini, 2010).

3rd Diploma Obstetrics Course of Study in Balikpapan consists of Inclusive Line divided into two classes, there are Inclusive Line class A and class B. The number of students are 197 persons, consisting of Regular First Degree, 79 persons, Second Degree 80 persons and Third Degree 38 persons.

The researchers will do the research at 3rd Diploma Obstetrics Course of Study in Balikpapan on Inclusive Line Obstetrics students. The researchers choose Inclusive Line for the reason of inclusive line domicile in Balikpapan. The other reason is in majority obstetrics students are women who on average are already 18 years old.

Many activities and assignments they got both from education and practice cause stress on students that can affect the pattern of their menstrual cycle since the students are demanded to catch up competencies at each degrees.

Based on the result of introduction study performed to 10 obstetrics students at Health Polytechnic, Ministry of Health, East Borneo 3rd Diploma Obstetrics Course of Study in Balikpapan, there are 7 students who experience irregular menstrual cycle. They report that they often get late menstruation, mainly when the students have many assignments. That is why the writers are interested to conduct a research about "Relation of Stress and Menstrual Cycle on Inclusive Line Students of 18-21 years old at 3rd

Diploma Obstetrics Course of Study in Balikpapan Health Polytechnic Ministry of Health East Borneo 2013".

II. METHOD

The research characterizes *analytic descriptive* with *cross sectional* research design that aims to find out the relation of stress and menstrual cycle on inclusive line students of 18-21 years old with the 197 number of students. Sampling uses *stratified random sampling*.

In this research, the researchers use closed questioner. It is for calculating dependent variables that consist of 3 questions to find out monthly menstrual cycle in the latest 3 months. Respondents with 21-35 days menstrual cycle in 3 months consecutively means that they experience regular menstrual cycle and respondents with < 21 days, > 35 days menstrual cycle or do not menstruate in 3 months consecutively means that they experience irregular menstrual cycle.

For stress variable, using measuring tool PSS (*Perceived Stress Scale*) that consists of 10 questions and the scale used is likert scale. From each questions half score is given, as the following: (Cohen, 2011) : 1 = never, 2 = ever, 3 = sometime, 4= often, dan 5 = very often.

Data analysis is the next step performed after the data collection. Then processing is performed to give information about result of the research (Arikunto,2006). Collected data is processed into two stages, they are: First, Univariate Analysis, the aim of the analysis is to explain from each variables, both bound variable, whether menstrual cycle or free variable, that is stress. On categorized data, data compaction only uses frequency distribution. The second stage is Bivariate Analysis, an analysis performed to two variables suspected to have correlation. To find out relation between categorized variable and orikkateg, degree test is used. Degree test aims to test presentation difference among some groups of data. A variable is stated categorized if the content of variable is formed from the result of classification (Hastono,2006).

III. RESULT OF THE RESEARCH

Univariate Analysis
Menstrual Cycle Description

Dependent variable on this research is menstrual cycle on inclusive line students of 18-21 years old at 3rd Diploma Obstetrics Course of Study in Balikpapan Health Polytechnic Ministry of Health East Borneo 2013". Based on result of the research, obtained result can be seen in the table below.

Table 1. Respondents Frequency Distribution Based on Menstrual Cycle

Menstrual Cycle	Frequency	%
Regular	72	54,5
Irregular	60	45,5
Total	**132**	**100**

Result of the research performed to 132 respondents, obtained that respondents who experience regular menstruation are 72 persons (54,5%) and irregular menstrual cycle are 60 persons (45,5%).

Stress Description

Independent variables on this research is stress. Based on result of the research, it is obtained that frequency distribution is based on the following:

Table 2. Respondents Frequency Distribution Based on Stressful

Stressful	Frequency	%
Do not stressful	65	49,2
Stressful	67	50,8
Total	**132**	**100%**

Result of the research performed to 132 respondents, obtained that respondents who do not experience stress are 65 persons (49,2%), and who experience stress are 67 persons (50,8%).

IV. BIVARIATE ANALYSIS

Relation of Stressful and Menstrual Cycle

After univariate analysis performed, then bivariate analysis is performed to find out the existence of relation between stress and menstrual cycle by using *chi square*(X^2) statistics test with 95% confidence level.

The result of the research about relation of stress and menstrual cycle, it is obtained that from 65 respondents who do not get stressful, 47 respondents (72,3%) experience regular menstrual cycle and 18 respondents (27,7%) experience irregular menstrual cycle, while 67 respondents who are stressful, as many as 25 respondents (37,3%) experience regular menstrual cycle, and 42 respondents (62,7%) experience irregular menstrual cycle. Based on statistics test it is obtained that result of P_{value} as many as 0,001, value of $P_{value} = 0,001 <$ value $\alpha = 0,05$. It can be seen from X2 calculation value which is bigger than table X2 (X^2 calculation value = 14,195 > table $X^2 = 3,841$), that means there is significant relation between stress and menstrual cycle on inclusive line students of 18-21 years old at 3rd Diploma Obstetrics Course of Study in Balikpapan Health Polytechnic Ministry of Health East Borneo 2013".

Result of Statistics test obtained shows that OR *(Odds Ratio)* as many as 4,387 which means that respondents with stress have a chance or tend to experience irregular menstrual cycle as many as 4,387 times compared to respondents without stress.

Table 4. Relation of Stress and Menstrual Cycle on Inclusive Line Students of 18-21 Years Old at 3rd Diploma Obstetrics Course of Study in Balikpapan Health Polytechnic Ministry of Health East Borneo 2013".

Stres	Menstrual Cycle				Amount	P_{Value}	X^2	OR
	Regular		Irregular					
	N	%	N	%				
Do not Stressful	47	72,3	18	27,7	65	0,001	14,915	4,387
Stressful	25	37,3	42	62,7	67			
Total	72	54,5	60	45,5	132			

V. CONCLUSION

Based on result of the research and discussion then it is concluded that most of inclusive line students at the age of 18-21 years at 3rd Diploma Obstetrics Course of Study in Balikpapan experience irregular menstrual cycle. Most of inclusive line students at the age of 18-21 years at 3rd Diploma Obstetrics Course of Study in Balikpapan experience stress. There is a significant relation between stress and menstrual cycle on inclusive line students at the age of 18-21 years at 3rd Diploma Obstetrics Course of Study in Balikpapan Health Polytechnic Ministry of Health East Borneo 2013". It can be seen from the value of $P_{value} = 0,001$.

BIBLIOGRAPHY

[1]. Akdon and Sahlan Hadi.2005.Statistics Application and Research Method for Administration and Management. Dewa Ruchi. Bandung.

[2]. Arikunto, Suharsimi. 2006. Research Procedure: A Practical Approach. Rineka Cipta. Jakarta.

[3]. Beri-beri,com 2010. Factors that Affects Irregular Menstrual Cycle on Inclusive Line Students Course of Study Obstetrics

[4]. http://www.beri-beri.com/2010/04/faktor-faktor-yang-mempengaruhi-tidak. htm l. Accessed on 29th of April 2012.

[5]. Cohen, Sheldon. 2012. Perceived Stress Scale (PSS). http://www.psy.cmu.edu/~scohen/. Accessed on 29th of April 2012.

[6]. Chomaria, Nurul. 2009. Accurate and Practical Tips to Get Rid Of Stressful. Diva Press. Jogjakarta.

[7]. Dariyo, A. 2004. Development of Adolescent Psychology. Ghalia Indonesia. Bogor.

[8]. Epigee. 2009. Irregular Periods (Oligomenorrhea). http://www.epigee.org/ menstruation/irregularperiods.html. Accessed on 30th of April 2012.

[9]. Fujiwara, Tomoko & Rieko Nakata . 2007. Young Japanese College Students with Dysmenorrhea Have High Frequency of Irregular Menstruation and Premenstrual Symptoms.

[10]. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2666467/. Accessed on 1st of May 2012

[11]. Furqonita, Deswaty. 2007. Biological Science Series Junior High School 9th Grade. Yudhistira Ghalia Indonesia. Jakarta.

[12]. Gunarya, Arlina. 2008. Stressful Management. http://www.unhas. ac.id/maba/bss2009/ mana-jemen/20diri/Modul%20MD08-Manajemen. Accessed on 30 March 2012

[13]. Hestiantoro, Andon. 2007. Why is Menstruation Irregular? Cause and Solution. Department of Obstetrics and Gynecology RSUPN Cipto Mangunkusumo. Jakarta.

[14]. http://gambarhidup.blogspot.com/2009/04/mengapa-haid-tidak-teratur-penyebab-dan.html. Accessed on 5th of April 2012.

[15]. Lee, Jonathan. 2012. Why Menstruation is Extended. http://merpatipos.com/mengapa-menstruasi-berkepanja-ngan/. Accessed on 25th of April 2012.
[16]. Mahbubah Atik. 2006. Relation of Stressful and Menstrual Cycle on 20-29 Years Old Women at Distric Sidoharjo, Subdistrict Pacitan, Regency Pacitan. Undergraduate Thesis. http://eprints.undip.ac.id/4302/1/2975.pdf Accessed on 16th of March 2012.
[17]. Mahsun. 2004. Being Friends with Stressful. Prisma Medika. Yogyakarta.
[18]. Manuaba, Ida Ayu Chandranita. 2009.Understanding Female Reproductive Health. EGC. Jakarta.
[19]. Mardiana, Nina. 2008. Guidance in Writing Scientific Papers (KTI). Health Polytechnic East Borneo. Balikpapan.
[20]. Nasution, Indri Kemala. 2007. Stressful on Adolescent. http://library. usu.ac.id/download/fk/ 132316815(1).pdf. Accessed on 3rd of April 2012.
[21]. Notoatmodjo Soekidjo. 2005. Health Research Methodology. Rineka Cipta. Jakarta.
[22]. Nugroho, Taufan. 2010. Woman's Health, Gender and The Problems. Nuha Medi-ka. Jakarta.
[23]. Oktaria, Sherly. 2009. Menstrual Cycle, Pre-Menstrual Syndrome, Also Menstrual Disorder at Reproductive Period. http://bidan2009 .blogspot.com/2009/02/siklus-haid-sindrom-pra-haid ser ta.html. Accessed on 17th of April 2012.
[24]. Priyatna, Andri. 2009. Be a smart teenager. Elex Media Kom-putindo. Jakarta.
[25]. Rasmun. 2004. Stressful, Coping and Adaptation. Sagung Seto. Jakarta.
[26]. Riantori, Quito. 2008. Beware of Stressful (Part.2). http://qitori. wordpress.com/2007/ 11/23/ waspadai-stres-bag-2/. Accessed on 23rd of April 2012.
[27]. Soenaryo dkk. 2007. Biostastics. Health Polytechnic Samarinda Department of Obstetrics Balikpapan.
[28]. Sugiono. 2007. Research Metodology. Alfabeta. Bandung.
[29]. Sukhraini, Isra. 2010. Relation of Stressful And Irregular Menstrual Cycle on Students of Faculty of Medicine USU 2007. KTI. http://repository.usu. ac.id/bitstream/123456789/23495/4/Chapter%20II.pdf . Accessed on 7th of May 2012.
[30]. Sunaryo, 2004. Psychology For Nursing. EGC. Jakarta
[31]. Spencer , Rebecca Fox. 2007. Menopause. Erlangga. Jakarta.
[32]. Sriati, Aat. 2008. Review About
[33]. Stressful.http://resources.unpad.ac.id/unpadcontent/uploads/publikasi_dosen/TINJAUAN%20TEN TANG%20STRES.pdf. Accessed on 20th of March 2012.
[34]. Tina. 2009. Menstruation. http://puryani. blog.com/2009/01/22/menstruasi/. Accessed on 27th of April 2012.
[35]. UNSRI. 2009. Stress & menstrual cycle.http://digilib.unsri.ac.id/download/Stress_&_menstru-al cyle.pdf. Accessed on 20th of March 2012.
[36]. Walker, J. 2005. Teens in Distress Series Adolescent Stress and Depression. http://www. extension.umn.edu/distribution/youthdevelopment/da3083.html . Accessed on 23rd April 2012.
[37]. Wangsa, Teguh. 2010. Facing Stressful And Depression, Art of Enjoying Life to be Always Happy. Oryza. Jakarta.
[38]. Wiknjosastro, Hanifa. 2005.Gynecology. Yayasan Bina Pustaka Sarwono Prawiro-harjo . Jakarta.
[39]. Wiknjosastro, Hanifa. 2005. Obstetrics. Yayasan Bina Pus-taka Sarwono Prawiroharjo. Jakarta.