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Correlation Of Anxiety Levels Regarding Menstrual Disorders In Young Women Of Midwifery Study Program Students

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ABSTRACT

Menstruation is the initial sign that the function of a woman's reproductive organs has matured, which occurs naturally due to the influence and maintenance of hormones along with the increasing age of a young woman. This situation takes place every month periodically like a cycle. Menstrual cycle of young woman tends to be irregular or disorders effect of the influence of age, physical activity, food, nutrition and psychological which will affect the balance of the hormone's estrogen and progesterone in the blood. This study was to determine the relationship the level of anxiety towards the teenage menstrual cycle. This study is an observational analytic study with a cross-sectional design, collecting research data using interview methods and WHO standard questionnaires for the level of anxiety (Taylor Manifest Anxiety Scale). The results of bivariat analysis is Spearman's test (α = 0.05%), were significant (p = 0,000), indicating that there was a correlation between anxiety levels for the teenage menstrual cycle of the students. Based on these research result, young woman needs to maintain a both physical health and mind health, therefore doing for the good stress management for avoid psychological disorders that efect of entire the body physical especially in the reproductif system.

Keywords: Level of anxiety, menstrual disorders, menstrual cycle and young women.

Introduction

The female reproductive cycle occurs naturally, which is marked since the woman experiences a menstrual cycle every month. Menstruation itself is a periodic blood discharge process starting 14 days after ovulation through the vagina due to the peeling and shedding of the uterine wall (endometrium) due to hormonal influences. The start of this menstrual cycle is a sign of the maturity of a woman's reproductive organs. Menstruation that appears for the first time is called menarche, usually starting at the age of 13-15 years and is also said to be puberty. The menstrual cycle is very important for reproductive function in preparation for conception and pregnancy. A normal and regular cycle indicates that a woman has good reproductive development and function. The menstrual cycle in women normally ranges from 21-35 days and only 10-15% have a 28-day menstrual cycle. The length of the menstrual cycle is greatly influenced by age, weight, physical activity, stress levels, genetics and nutrition (Wiknjosastro, 2005; Octaria, 2009; Haniza & Perwiraningtyas, 2018).

In adolescence, there is often increased emotional tension due to physical and glandular changes that cause adolescents to be very sensitive to new expectations, easily disturbed, either in the form of thought disorders, feelings or behavioral disorders (Pinanti, 2012; Rosiana, 2016). Data from the 2010 Basic Health Research showed that most 68% of women in Indonesia aged 10-59 years reported regular menstruation and 13.7% experienced irregular menstrual cycle problems in the past year (Riskesdas, 2010). Menstrual cycle disorders are influenced by disorders in hormone function, systemic disorders, thyroid glands, hyperprolactin and psychological factors such as depression, stress and anxiety, (Isnaeni, 2010) as a result menstruation becomes longer and/or more, irregular, more frequent or no menstruation at all. Emotional disturbances, tension, stress, anxiety can lead to symptoms of abnormal uterine bleeding. This occurs because the hypothalamus which then affects the cycle of hormone release that stimulates ovulation is blocked, resulting in menstrual irregularities (Ramaiah, 2006).

One of the hormone systems in the body that is influenced by psychological factors is the Hypothalamus-pituitary-ovarian (HPO) axis. This axis is a hormonal system that regulates follicle maturation, ovulation and the menstrual cycle. If the HPO axis and other hormones are disturbed, it can affect the regularity of the menstrual cycle (Prawirohardjo, 2010). Stress or anxiety can disrupt a woman's menstrual cycle because the stress center in the brain is very close to the menstrual regulation center in the brain (Riani, 2005). The presence of psychosocial stressor stimuli causes the neuro network in the brain to participate in providing danger signals. The brain can constantly send messages that something is wrong and requires immediate attention (Nevid et al., 2005).

According to Santrock (2007), self-adjustment is needed by adolescents in undergoing life transitions, one of which is in the school environment. High academic routines and demands make female students susceptible to stress (Santrock, 2007) the same as for students majoring in midwifery who are required to complete courses on time by means of learning in the classroom, laboratory and field practice activities that drain energy and mind, so that these midwifery students are very susceptible to emotional disorders, especially feelings of anxiety. Anxiety and stress factors are

universal phenomena that have an impact on the physical, social, emotional, intellectual, and spiritual. For students in facing or undergoing lectures that are too dense, very tiring clinical practices, many assignments and the thesis writing process are stress triggers that cause the menstrual cycle to become irregular (Kusyani, 2012).

Menstrual disorders are an important indicator to show the presence of reproductive system disorders that can be associated with an increased risk of various diseases such as uterine cancer, breast cancer and infertility (Sianipar et al., 2009). Menstrual disorders in adolescents have recently occurred frequently but sometimes go unnoticed because adolescence is still considered young and seems far from the possibility of experiencing problems with their reproductive organs, even though prevention and treatment should be carried out as early as possible (Manuaba, 2010). Based on a preliminary study conducted on several female Diploma IV Midwife Educator students at the University of 'Aisyiyah Yogyakarta, they said that for the past three months they had experienced disorders in their menstrual cycles including secondary amenorrhea, polymenorrhea and oligomenorrhea caused by a busy lecture schedule and many assignments that had to be done, so that female students lacked rest and resulted in stress (Sari & Pratiwi, 2016).

Several students of the D3 Midwifery study program Undiksha admitted that the stressful conditions experienced when making reports in lectures or practical activities would trigger the consumption of instant foods and high carbohydrates so that it would affect the menstrual cycle. Based on several incidents, researchers are interested in analyzing the relationship between anxiety levels and menstrual cycle disorders in adolescent girls. To overcome menstrual disorders, the first two therapies must involve a doctor, while natural ingredient therapy and healthy lifestyle can be done by yourself, such as paying attention to adequate nutritional intake and exercise as needed and avoiding excessive stress (Proverawati, 2009).

Research Method

This study is an observational analytical study with quantitative data, this study uses a cross-sectional approach. This approach is used to see the relationship between anxiety levels and menstrual cycle disorders in adolescent female students of the D3 Midwifery study program Undiksha. The population is 220 female students, based on sample calculations using the Slovin formula, a sample of 69 people was obtained with a sampling technique using probability random sampling. Respondents filled out an anxiety level questionnaire, namely the T-MAS (Taylor Manifest Anxiety Scale) questionnaire and answered questions while filling in data about the menstrual cycle. After the data was collected, data processing was carried out by calculating the score on the anxiety level, and the state of the menstrual cycle, then entered into categories that had been previously determined with an ordinal and nominal scale. The level of anxiety has categories including: anxiety, mild and severe and menstrual cycle disorders such as: polyamenorrhea, oligoamenorrhea and amenorrhea. The data that has been collected is processed, arranged, and presented in table form and analyzed based on the percentage results and to obtain a correlation, it was analyzed using Bivariate Analysis (Spearman's rho).

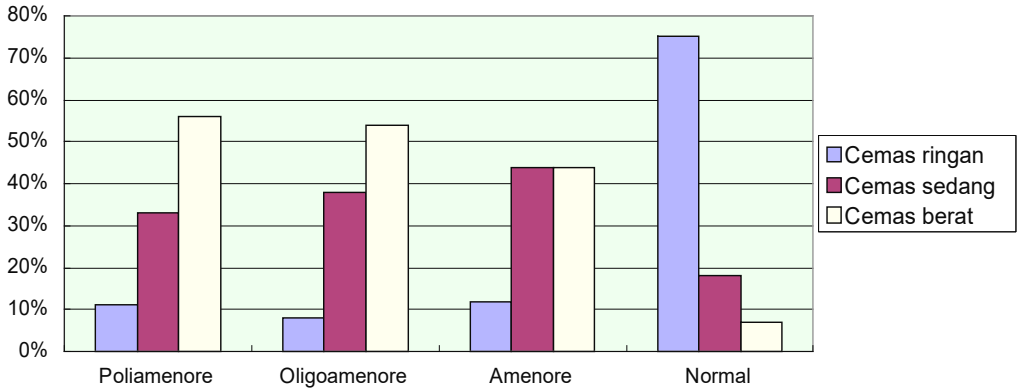
Results and Discussions

Table 1. Anxiety levels regarding menstrual cycle disorders in students in each respondent group

Anxiety category	Menstrual disorders						Normal		Total	r	P
	Poliamenore		Oligoamenore		Amenore						
	n	%	n	%	n	%	n	%			
Mild	1	11	2	8	1	11	20	75	24	0,558	0,000
Moderate	3	33	9	38	4	44,5	5	18	21		
Severe	5	56	13	54	4	44,5	2	7	24		
Total	9	100	24	100	9	100	27	100	69		

Based on data from 69 female students who experienced anxiety from mild, moderate to severe anxiety levels, it was found that around 42 (61%) people experienced menstrual disorders and only 27 people (39%) experienced normal menstrual cycles or in other words never experienced problems or disorders in the menstrual cycle. After analysis using the Spearman test, it was found that the r value = 0.55 and the significance value (sig.2 tailed) p = 0.000 (p <0.05), it can be concluded that there is a significant relationship between anxiety levels and disorders in the menstrual cycle of adolescent girls in D3 Midwifery students at Ganesha University of Education. The results of this study are in line with research by Toduho et al (2014), stating that there is a significant relationship between psychological stress and the menstrual cycle in high school students. Likewise, research by Singh et al in the same year showed a relationship between stress and menstrual symptoms, the time of menstruation can change along with a person's stress level so that the cycle becomes irregular and disrupted (Toduho et al., 2014).

Figure 1. Graph of anxiety levels regarding menstrual cycle disorders



The results of the study showed that the group experiencing severe anxiety experienced more menstrual disorders than the mild and moderate anxiety groups. It is known that respondents experiencing severe anxiety have menstrual disorders such as polymenorrhea

with a percentage of 56%, oligoamenorrhea as much as (54%) and amenorrhea as much as 44.5% of respondents while those who do not experience menstrual disorders in this group are around 7%. In respondents with mild anxiety, the majority experience a more regular menstrual cycle compared to the moderate and severe categories and are known to have a normal menstrual rate of 75%. This condition shows that the lighter a person's anxiety level, the lower the incidence of menstrual disorders and vice versa, the higher the level of anxiety experienced, the greater the risk of menstrual disorders in the form of polyamenorrhea, oligoamenorrhea and amenorrhea.

Menstrual cycle disorders are influenced by disorders of hormone function, systemic disorders, stress, thyroid glands, and excessive prolactin hormone. Menstrual cycle disorders consist of: short menstrual cycles called polymenorrhea, long menstrual cycles or oligomenorrhea and amenorrhea if menstruation does not come for three consecutive months.5 The menstrual cycle process does not run normally, it can be caused by ovarian disorders, hypothalamic disorders, stress or depression, obesity, tumors that secrete estrogen, and others. This condition causes the hormones that play a role in the menstrual cycle to be disrupted. If there is a disruption in FSH and LH, it will not cause the formation of eggs, if so, the hormones estrogen and progesterone will also not form properly. The impact if menstrual cycle disorders are not treated will result in fertility disorders, the body loses too much blood which triggers anemia. Based on this study, it was found that the most menstrual disorders occurred in all respondents with mild, moderate to severe anxiety levels, namely oligoamenorrhea or menstrual cycles that are longer than normal (> 28-35 days) as many as 24 people, indicating that adolescent girls often experience menstruation that is longer than normal even once every 2 months or passes 2 normais menstrual cycles. Oligoamenorrhea occurs because the ovulation process does not occur due to egg follicles that cannot mature, so that progesterone cannot come out while estrogen continues to work to thicken the uterine wall without releasing eggs, affecting the length of the menstrual cycle.

The cause, apart from academic stress experienced by students, can also be due to disorders of the thyroid gland and high levels of the hormone prolactin which can interfere with brain and ovarian signals. This study is in line with the study by Matteo and Harlow (1987), which found that stress is associated with long menstrual cycles (oligoamenorrhea) (Ekpenyong et al., 2011). Research by Jenifer examined the effect of stress on the menstrual cycle of women in prison, menstrual dysfunction in the population was known to be around 9% reported experiencing amenorrhea, 33% reported experiencing problems with the regularity of the menstrual cycle (Jenifer, 2007). The results of further research by Nwankwo (2010), showed that the prevalence of menstrual disorders occurred in 69.4% of respondents such as dysmenorrhea, pre-menstrual syndromes and also polyamenorrhea (Ekpenyong et al., 2011).

Research conducted by Rosendi (2011) on female students at SMA 5 Cimahi, that stress can affect the menstrual cycle because during stress the hormone cortisol as a product of the adrenal cortex glucocorticoid synthesized in the fasciculata zone can disrupt the menstrual cycle because it affects the amount of progesterone hormone in the body (Toduho et al., 2014). The results of this study indicate that the more severe the level of anxiety experienced, the greater the incidence of menstrual disorders experienced by adolescent girls. This condition indicates that the more severe the anxiety experienced, the stronger the triggering factor for problems with the menstrual cycle which tends to be irregular and other menstrual disorders. In general, midwifery students do have many academic tasks and midwifery care

targets that must be completed on time, both tasks obtained on campus and in the field or practice area.

Emotional conflict, tension and anxiety that occur in adolescents can play a role and uncomfortable feelings that cause anxiety (Prawirohardjo, 2009). One of the hormone systems in the body that is influenced by these psychological factors is the Hypothalamus-pituitary-ovarian-axis. This HPO axis is a hormonal system that regulates follicle maturation, ovulation and the menstrual cycle. If the HPO axis and hormones that play a role such as FSH, LH, estrogen and progesterone are disturbed, it can affect the regularity of the menstrual cycle (Prawirohardjo, 2010). This stress or anxiety can disrupt a woman's menstrual cycle because the stress center is very close to the menstrual regulation center in the brain (Riani, 2005). The presence of stimulation due to psychosocial stressors causes the neuron network in the brain to give a danger signal. The brain can constantly send messages that something is wrong and requires immediate attention (Nevid et al., 2005).

Anxiety as a stimulus through the nervous system is transmitted to the central nervous system, namely the limbic system through nerve transmission, then through the autonomic nerves (sympathetic or parasympathetic) it will be forwarded to the hormonal glands (endocrine) to secrete neurohormonal secretions (fluids) to the pituitary through the frontal system to release gonadotropins in the form of FSH (Follicle Stimulating Hormone) and LH (Leutinizing Hormone). The production of both hormones is under the influence of GnRH (Gonadotropin Releasing Hormone) which is channeled from the hypothalamus to the pituitary. The release of RH is greatly influenced by the estrogen feedback mechanism on the hypothalamus which then influences the menstrual process (Prawirohardjo, 2007).

Simbolon (2017) also said that stress causes an increase in the levels of Corticotropin Releasing Hormone (CRH), Glucocorticoid, vasopressin and opioid peptides from within the body because the hypothalamic-pituitary-adrenal (HPA) axis has been activated, which is an inhibitor for the hypothalamic-pituitary-gonadal (HPG) axis. Therefore, the hypothalamus begins to respond and then stimulates the anterior pituitary to secrete adenocorticotropic hormone (ACTH) which stimulates the adrenal glands to secrete cortisol. Excessive secretion of cortisol will suppress female reproductive function, due to the inhibition of GnRH secretion in the arcuate nucleus of the hypothalamus which results in lengthening or shortening of the menstrual cycle. The mechanism of action of the cortisol hormone as a product of adrenal cortex glucocorticoids synthesized in the fasciculata zone can disrupt the menstrual cycle, because it inhibits LH secretion by inhibiting the anterior pituitary response to GnRH (Guyton & Hall, 2014).

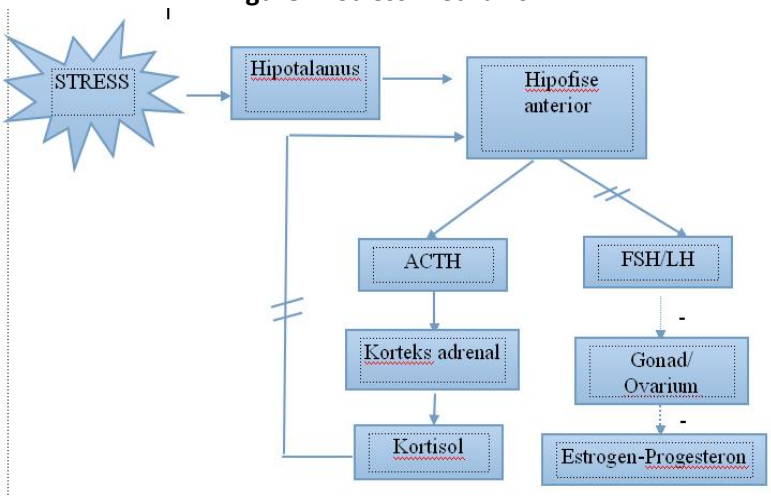
The cortisol hormone as a product of adrenal cortex glucocorticoids synthesized in the fasciculata zone can disrupt the menstrual cycle because it affects the amount of progesterone hormone in the body. The amount of hormones in the blood that is too much can cause changes in the menstrual cycle. According to Wulandari (2011), academic stress is stress caused by academic stressors, namely those originating from the teaching and learning process or those related to learning activities including the length of study, the number of assignments, decisions to determine majors, and exam anxiety.

The results of this study are in accordance with the theory that menstrual cycle disorders are influenced by stress. According to Proverawati (2009), stress causes systemic changes in the body, especially the requirement system in the hypothalamus through changes in prolactin or endogenousopiates that can affect basal cortisol elevation and reduce LH which causes

amenorrhea. According to Prawirohadjo in Kusyani (2012) stress often causes irregular menstrual cycles. This happens because stress as a stimulus to the nervous system is transmitted to the central nervous system, namely the limbic system through nerve transmission, then through the autonomic nerves it is transmitted to the hormonal glands (endocrine) to release neurohormonal secretions (fluids) to the pituitary through the prontal system to release gonadotropins in the form of FSH and LH.

The production of both hormones is influenced by RH (Realizing Hormone) which is channeled from the hypothalamus to the pituitary. The release of RH is greatly influenced by the estrogen feedback mechanism to the hypothalamus so that it affects the menstrual process. This is in accordance with what Pamela (2009) stated in Ekpenyong et al. (2011) stated that many other factors were found and caused menstrual disorders in adolescents, namely the environment, nutrition, drugs, physical activity and stress (physical, emotional and mental). Thus it can be concluded that the higher the respondent's stress level, the greater the possibility that the respondent will experience menstrual cycle disorders.

Figure 2. Stress Mechanism



During the menstrual cycle, the role of LH is very much needed in producing estrogen and progesterone, for the menstrual cycle to run. The influence of the hormone cortisol causes an imbalance in these hormones, which results in an irregular menstrual cycle (Sheerwood, 2011). One thing that can cause stress in female students, especially in their final year is the final assignment report. The report is one of the things that is considered the most frightening, because if they cannot complete the final assignment, then the female student cannot complete their education. This can cause confusion and feelings of pressure which can ultimately cause stress, so that the many activities and tasks obtained both from education and from the field of practice cause stress in female students which can affect their menstrual cycle patterns or menstruation, because female students are required to pursue competencies at each level (Nurlaila et al., 2015). Midwifery students are also faced with the burden of achieving a fairly large curriculum and credits during their

education, in addition to having to be far from their families and living in dormitories. Therefore, many students experience this anxiety and may have emotions that are still unstable. Santrock (2007), stated that self-adjustment is needed by adolescents in undergoing life transitions, one of which is the transition in the school environment. High academic routines and demands make female students susceptible to stress, the same as midwifery students who are required to complete courses on time by learning in the classroom, laboratory plus field practice activities such as in hospitals, health centers, midwife clinics that are not only in one district/city. which drains energy and mind, so that midwifery students are very susceptible to emotional disorders, especially feelings of anxiety.

The relationship between menstrual disorders and academic stress has been observed by Ekpenyong et al. (2011), obtaining data that menstrual disorders such as menorrhagia occur as much as (37.5%), Pre-menstrual Syndrome (PMS 33.1%), Oligomenorrhea 19.9%, and amenorrhea 5.9% (P <0.05). The study showed a significant association between academic stress and menstrual disorders in women in Uyo, South Eastern Nigeria (Ekpenyong et al., 2011). The psychological mechanisms involved suggest that prolonged and excessive activation of the hypothalamic-pituitary adrenal axis due to stressors may alter the hormonal picture in the body, increasing the levels of corticotrophin releasing hormone (CRH) and glucocorticoids (Mei et al., 2010). The hormone cortisol increases brain function and slows down or even stops non-essential body functions, such as cellular growth, the digestive system and the reproductive system (Kalantaridou et al., 2004). This will cause the synthesis and metabolism of gonadotropin hormones including estrogen to be suppressed (Constantine et al., 2002), thus affecting menstrual function in women. In another study by Sandler and Bruce found that cortisol levels were found to be high in women who experienced longer menstrual cycles (Sanders et al., 1999).

Conclusion

The level of anxiety of adolescent girls affects the pattern and regularity of the menstrual cycle in female students of the D3 Midwifery study program. This anxiety occurs because someone cannot cope with psychosocial stressors so that anxiety disorders occur. Therefore, it is necessary for adolescent girls to maintain a healthy and regular lifestyle and be able to carry out coping management to control stress and anxiety, especially when facing problems both personal and academically related, they can use simple methods that can change their mood or emotional state to be better and easier to control.

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Conflic of Interest

The authors have no conflicts of interest regarding this investigation.

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