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Determinants of Male and Female Infertility: A Systematic Review

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Abstract

Infertility is a problem that is still a lot in the world. Infertility cases are fertility disorders in both women and men caused by reproductive disorders and environmental factors. The purpose of this study was to determine the determinants of infertility by using studies obtained from 8 national and international databases, namely Garuda portal national system, Google Scholar and Sinta, international system with Science Direct, Scopus, Cambridge Core, Proquest, Springer Link. Then processed and selected with a prism diagram. The relevant results are 10 studies through the national system and 10 studies through the international system. It was found that there are 4 categories that are the determinants of male and female infertility, including the history of reproductive disorders, prevention in infertility, Problem Solving the mental readiness of the couple and the lifestyle of the couple.

.**Keywords**: determinants; infertility; factors; male and female

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Introduction

Infertility is a fertility disorder in both women and men caused by reproductive disorders and environmental factors. Infertility rates in the country are still high, especially in developing countries (BKKBN, 2020). Data from WHO about 50-80 million couples or one in seven couples experience fertility problems. Every year 2 million couples appear with the same problem (Organization, 2017). In Indonesia, it is estimated that more than 20% of married couples suffer from infertility. Infertility affects 15 percent of women aged 30-34 years, 30 percent of women aged 35-39 years, and 55 percent of women aged 40-44 years (Syamsiah, 2020). Infertility affected 1,712 men and 2,055 women in 2017, according to data from the Indonesian In Vitro Fertilization Association (Perfitri) (Compass, 2018). According to Central Java BKKBN statistics, the number of couples of childbearing age (EFA) in Central Java is 6 million, with 5.5 percent of them facing infertility problems (BKKBN, 2013). Infertility affects 66 percent of women of childbearing age in Semarang City (Nurullita, 2017)

Infertility in women is caused by various causes, including reproductive organ abnormalities, age, stress levels, BMI, work, hormones, and anatomical abnormalities.

Ovulation, tubal, pelvic, and uterine abnormalities such as reproductive organ abnormalities. Infertility is more likely to occur in women with reproductive organ disorders than in women who do not have them (et al., 2017). Infertility can also be influenced by external factors, namely the environment and lifestyle (Eddyman W, 2016). The causes of infertility in men are due to factors such as age, length of effort, frequency of intercourse, exposure to heavy metals, radiation, diet, cigarettes, alcohol and drugs (Amelia, Leni, 2019). Women of childbearing age and couples of childbearing age before marriage are very susceptible to infections that can cause infertility (Akbar, 2020). Research is more directed towards diagnostic treatment, and causes of infertility. The existence of this paper tries to find out what factors have the most influence on infertility in women and men from other factors related to infertility prevention behavior.

Methods

The research method used is a literature review. Data were collected with study literature from various sources of literature on infertility, qualitative analysis, the analysis was carried out using thought methods ranging from general to specific data (Priasmoro, 2019). Through the literature from 2016-2021, the use of keywords is factors and infertility, women and men. Disaggregated by inclusion criteria studies of studies related to infertility in women and men. Exclusion criteria are not studies of infertility in men and women. Results sequality article selection using the modified Critical Appraisal Process from Loney et al's research (Loney P, Chambers L, Bennett K, 1998), systematically analyzed and team discussion to make it easier to understand the determinants of infertility prevention. The use of the international system with science direct, scopus, Cambridge core, proquest, springer link and the national system of the garuda portal, google scholar and sinta obtained as follows:

Table 1. National Online Data Search System

Databases	Results
1 Garuda Portal	51
2 Google Scholar	878
3 Sinta	10
Total	939

Table 2. International Online Data Search System

Databases	Results
1 Science Direct	169
2 Scopus	880
3 Cambridge Core	11931
4 Proquests	16
5 Springer Link	11
Total	13007

Results and Discussion

Search strategies on national and international online data that are potentially relevant for research are as follows:

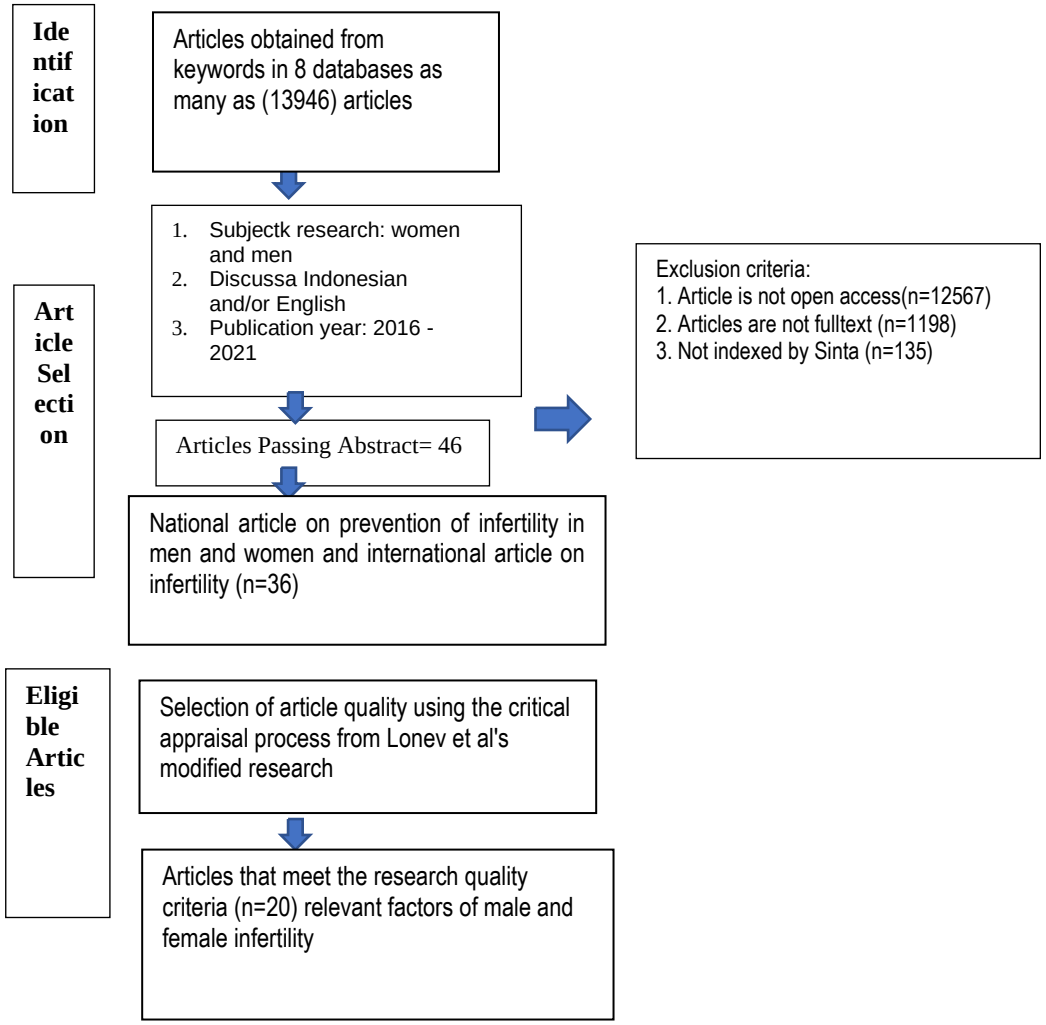

Figure 1. Article Selection FlowFigure

The strategy in searching for national online data resulted in 10 studies that were potentially relevant for research. Checking the abstracts, 10 study studies were selected and a study review was conducted as follows:

Table 3. Study Study

Author,Title	Journal,Year	The place	Respondent	Method	Results
Silvia W. Lestari,1 Meidika D. Rizki2, Epigenetic: A new approach to the etiology of infertility[13]	Medical Journal Indonesia, Vol. 25, No. 4 December 2016	Indonesia	Infertile women and men	Epigenetic modification experiment	Epigenetic modifications during oogenesis also affect oocyte quality as in other etiologies of female infertility, namely endometriosis and PCOS. Changes in the pattern of epigenetic modifications are associated with impaired spermatogenesis and oogenesis that can lead to infertility.

Author,Title	Journal,Year	The place	Respondent	Method	Results
Kadri Rusman, Effect of Smoking Activity on Sperm Analysis Results in Cases of Male Infertility in Makassar December 2015 – March 2016[14]	UMI Medical Journal, Journal of Medicine, Vol. 4 No. 2 (December, 2019)	Indonesia	182 patients consisting of 91 primary infertile smokers and 91 primary infertile non-smokers	case control	The relationship between smoking activity and sperm analysis results, there is a significant relationship, in this case an inverse (negative) relationship between sperm volume and smoking activity. The category of smokers with sperm volume (r=-0.225, p=0.002), while the length of smoking and sperm volume (r=-0.252, p=0.001).
Coresy Aquindo Tedjo Prajogo and Putu Nugrahaeni Widiasavitri, The role of problem focused coping and emotional focused coping on. marital satisfaction on wives who experience infertility (Aquindo, Coresy, Tedjo Prajogo, 2020)	Udayana Psychology Journal Special Edition Mental Health and Culture, 2020, 1, 35-43	Indonesia	A wife, both experiencing primary and secondary infertility, aged between 20 years to 35 years and a minimum of one year of marriage	Cohort	That problem focused coping and emotional focused coping together play a role in marital satisfaction. R Square coefficient value of 0.235 indicates that problem focused coping and emotional focused coping have a role of 23.5% on marital satisfaction in wives who experience infertility, while 76.5% is influenced by other factors not examined in this study.
Ayuningtyas Tri Handini, Mirfat, Relationship between Age and Obesity with Infertility in patients at the Presidential Hospital of the Gatot Soebroto Army Hospital (Tri Handini & Mirfat, 2018)	PharmaMedika Health Magazine 2017, Vol. 9 No. 1	Indonesia	50 women consist of 25 infertile patients and 25 infertile patients	Cross Sectional	There was no significant correlation between age and infertility (p = 0.572) and obesity was not significantly associated with infertility (p = 0.235). However, being overweight is a factor that needs to be considered because the ethnic variation that causes being overweight is enough to increase the risk of metabolic disorders in South Asian populations.
Hendy Hendarto, Infertility Stress Inhibits Oocyte Maturation and In Vitro Fertilization Results	Obstetrics & Gynecology Magazine, Vol. 23 No. January 1 - April 2015: 17-21	Indonesia	30 infertile women aged 20-35 years and have regular menstrual cycles and without metabolic disease,	Analytical observation with cross sectional	14 people experienced moderate stress (46.7%). Research subjects with mild stress levels were compared with those with moderate and severe stress (p=0.00). The heavier the stress level experienced by the research subjects, the less mature oocytes

Author,Title	Journal,Year	The place	Respondent	Method	Results
(Hendarto, 2015)			diabetes, hypertension, thyroid, obesity		
Novarina Sulsia Ista'in Ningtyas, Effect of Giving Red Fruit Oil (Pandanus conoideus Lam.) on Hispathology of Graafian follicles in mice (Mus musculus) Infertile model (Rahmawati, S., Tirtasari, K., Ningtyas, N. S. I. I., & Agustin, 2017)	Journal of Sangkareang Mataram Volume 3, No.3, September 2017	Indonesia	The mice in this study were divided into four groups, namely negative control (normal mice), positive control (infertile mice), infertile mice that were given 0.05 ml of red fruit oil for 14 days, and infertile mice that were given 0.1 ml of red fruit oil. for 14 days. Counting the number of follicles was obtained by reading ovarian HE preparations after treatment.	Experimental case control animal trials	Giving red fruit oil can increase the process of folliculogenesis by increasing the number of Graafian follicles. Follicular development or folliculogenesis shows the stages of development starting from primary follicles, secondary follicles, tertiary follicles to become Graafian follicles. One of the hormonal disturbances in one stage of folliculogenesis will cause the Graafian follicle to not form so that ovulation will not occur. This failure of ovulation can interfere with the reproductive rate of livestock
Dina Wahyunita, The Effect of Dhikr Relaxation Training on Improving the Subjective Welfare of Wives Who Have Infertility (Wahyunita, 2014)	Journal of Interventional Psychology Vol. 6 No. December 2, 2014	Indonesia	patients with essential hypertension, (b) are Muslim, (c) have anxiety scores from moderate to high categories, and (d) are in the categories of essential hypertension stage 1 and 2.	pretest-posttest control group design	The results of U Mann Whitney's analysis showed a Z score = -2,627 and a p value = 0.008 ($p<0.05$). This indicates that there is a significant difference in the anxiety level of essential hypertension patients between the experimental group and the control group after being given remembrance relaxation therapy. The experimental group showed lower levels of anxiety compared to the control group. This indicates that remembrance relaxation therapy has an effect on reducing anxiety in essential hypertension patients after being given remembrance relaxation therapy so that infertility can be handled in anxiety problems.
Aidil Akbar, Overview of Factors Causing Male Infertility in Indonesia	Pandu Husada Journal, No. 1 Vol. April 2, 2020	Indonesia	Men with infertility	Cross sectional	The causes of infertility in men in Indonesia are caused by internal factors (58%), external factors (32%) and other factors (10%)

Author,Title	Journal,Year	The place	Respondent	Method	Results
(Akbar, 2020) Hartanto Bayuaji, Rational and Efficient Management of Infertility to Shorten "Time to Pregnancy" (Bayuaji, 2018)	Obgynia, Volume 1 Number 2 September 2018	Indonesia	Women with infertility examination	Systematic review	In a woman's menstrual cycle, it can be used to perform several examinations selected. The focus of the examination is to identify the health background of husband and wife, to find out if there are any ovulation and ovarian reserve, tubal patency tests, anatomic evaluation of the uterus and peritoneum, and sperm analysis. After the basic data is obtained, a comprehensive evaluation is carried out to determine the treatment program appropriate
Anastasia Oktarina, Adnan Abadi, Ramli Bachsin, Factors Affecting Infertility in Women at the Fertility Clinic of Reproductive Endocrinology (Oktarina et al., 2014)	Health Magazine, Th. 46, No. 4, October 2014	Indonesia	Infertile women	Cross sectional	The age group of 25-35 years, as many as 71 cases (71%) and the lowest in the age group. The most duration of infertility found in the group of infertile women was with the duration of infertility above 3 years (61.3%). Based on the type of infertility experienced by infertile women, 49 people (79%) were primary infertility. The types of follow-up examinations that are mostly performed by infertile women are ultrasound examination and diagnostic laparoscopy. The most common comorbidities found in infertile women sampled in this study were endometriosis and uterine myomas.

Search strategy on international online data produced 10 potentially relevant papers for research. Examining the abstracts, 10 studies were selected and a study review was conducted. Looking at the inclusion criteria and obtained 10 papers included in this systematic review from *science direct, scopus, cambridge core, proquest, springer link*. According to the framework provided for the quantitative meta-analysis. Ten findings and illustrations were drawn from quantitative studies, animal trials, study studies and each finding was assigned a credibility rating according to the quantitative meta-analysis criteria. The findings are then identified according to the objective of a systematic review to produce four categories, and the similarity of the findings in a certain sense to the four categories is then treated with a meta-analysis to produce several synthesized findings that can potentially be used as a basis for evidence-based practice related to factors. -The determinants of infertility in men and women are as follows:

Table 4. Study Study

Author,Title	Journal,Year	The place	Respondent	Method	Results
Ika Indarwati1), Uki Retno Budi Hastuti2), Yulia Lanti Retno Dewi 3), Analysis of Factors Influencing Female Infertility (et al., 2017)	Journal of Maternal and Child Health (2017), 2(2): 150-161	Indonesia	Infertile woman	case control	The association between age and female infertility was statistically significant (OR=8.00; 95% CI=3.10 to 20.61; p<0.001). Job variables showed that working women (career women) were 8.72 times more likely to experience infertility, the relationship between work and female infertility was statistically significant (OR=8.72; 95% CI=3.30 to 23.01; p<0.001). Level variable stress showed that women with high (abnormal) stress levels were 6.40 times more likely to experience infertility, the body mass index variable shows that women with an abnormal body mass index of up to 22.9) have a 3.33 times greater chance of experiencing infertility. The results of the analysis show that there is a relationship between body mass index with female infertility and statistically significant (OR=3.33; 95% CI=1.42 to 7.77; p=0.004). great for infertility. The results of the analysis show that there is a relationship between reproductive organ abnormalities and female infertility and it is statistically significant (OR=7.36; 95% CI=2.97

					to 18.21; p<0.001). The most influential multivariate outcome was that women with reproductive organ disorders (ovulation disorders, tubal and pelvic disorders and uterine disorders) increased the risk of infertility 11.67 times greater than women who did not have reproductive organ disorders and was statistically significant (OR= 11.67; 95% CI). = 2.80 to 48.54; p= 0.030).
Weiwei Sun,1 Lulu Chen,1 Wei Zhang,1 Rong Wang,1 David Goltzman,2 and Dengshun Miao, Active vitamin D deficiency mediated by extracellular calcium and phosphorus results in male infertility in young mice (Sun et al., 2015)	Am J Physiol Endocrinol Metab 308: E51–E62, 2015	Canada	Infertile mice	Animal test	The results of this study showed that mineral ion deficient and 1,25(OH)2D3- deficient mice exhibited smaller testes, characterized by histologic abnormalities, and significantly lower sperm counts;
By Heather Stringer, No insurance required: Psychologists who treat the trauma of infertility (Stringer, 2017)	Psychological Review July/August 2017, Vol 48, No. 7	United States of America	Couples with infertility	Observation	The importance of the role of rebuilding the relationship between partners in understanding reproductive function and care about reproductive health
Vera Skvirsky, Orit Taubman – Ben-Ari, Shirley Ben Shlomo, Joseph Azuri & Eran Horowitz, Are mothers a source of support for women entering fertility treatment?(Skvirsky et al., 2018)	Health Care for Women International,2018	Israel	Women who come for the first visit for infertility treatment	Cross sectional	A significant positive relationship was found between overprotection and distress (RD .25, p D .003). However, no significant correlation emerged between overprotection and well-being (RD .15, PD .073). The more a woman perceived her mother's support in the form of active involvement, the higher her well-being and the

					lower the stress, whereas the more she perceived the support to be overprotective, the more he went through a lot of suffering.
Kyoko Asazawa, Mina Jitsuzaki, Akiko Mori, Tomohiko Ichikawa, Katsuko Shinozaki and Sarah E. Porter, Quality-of-life predictors for men undergoing infertility treatment in Japan (Asazawa et al., 2019)	Japan Journal of Nursing Science (2019)	Japan	Men with infertility treatment	Cross sectional	The mean age (-standard deviation) was 37.9 (-5.2) years. On average, the duration of infertility was 3 years and 1 month and the duration of infertility treatment was 1 year and 4 months. Two significant predictors of QOL were partner support (β = 0.32, P < 0.001 and period of infertility (β = 0.11). , P < 0.05) Spousal support had a positive impact, whereas prolonged duration of infertility had a negative impact on the total QOL score.
Ayla Çapık |Meyreme Aksoy Emine Yılmaz Filiz Yılmaz, Infertility Stigma Scale: A psychometric study in a Turkish sample (Çapık et al., 2019)	Willey, 2019	Turkey	Infertile women	case control	Low correlation coefficient, scale items are not reliable enough. The total item correlation in the original scale ranges from 0.60 to 0.87.21 In this study, the item-total correlation changed between 0.37 and 0.79. To consider an item acceptable, it is required that the item-total correlation coefficient must be positive and at least 0.30.31 In this case, the item-total correlation of all items is found to be sufficient. So the ISS is a valid and reliable instrument for the Turkish people. ISS consistency is enough.
Florence Naab, M'phil, RN, Roger Brown,	Journal of nursing scholarship,2013	Ghana	Infertile Woman	Cross sectional	and belief in personal control over infertility

Susan Heidrich, RN, Psychosocial Health of Infertile Ghanaian Women and Their Infertility Beliefs (Naab PhD, M'phil, RN et al., 2013)					were significant predictors of anxiety and perceived stigma. Only a few health variables related to sociodemography and infertility were significant predictors. Lower levels of education predict higher levels of stress. Marriage predicts higher stress but less perceived stigma, while length of marriage is associated with reduced social isolation. Staying on medication longer predicted less social isolation, but using alternative medicine was associated with depression. Marriage predicts higher stress but less perceived stigma, while length of marriage is associated with reduced social isolation. Staying on medication longer predicted less social isolation, but using alternative medicine was associated with depression. Marriage predicts higher stress but less perceived stigma, while length of marriage is associated with reduced social isolation. Staying on medication longer predicted less social isolation, but using alternative medicine was associated with depression.
Ramamurthi et al. Psychological Impact And Coping Strategies Among Women With Infertility (Ramamurthi, R., Kavitha, G., Pounraj,	3,2016:114-118. India India,2016		The age group of 21 to 25 years and women are at risk for infertility	Cross sectional	The age group of 21 to 25 years 35.7% and 45.5% of women had a recent risk of infertility. It is reported that 17% of women have

D., & Rajarajeswari, 2016)					difficulty falling asleep. 58.9% of women reported high levels of anxiety. 26% of women experienced noticeable weight loss. Meanwhile, 48.2% of women reported feeling guilty and 35.7% of women reported feelings of pessimism and suicidal tendencies. 16.28% of female participants reported being immersed in household activities followed by 13.95% with hobbies and 11.63% with weeping.
Pedro, Athens. Coping With Infertility: An Explorative Study Of South African Women's experiences (Pedro, 2015)	Journal Of Obstetrics And Gynecology, 5, 49-59,2015	south Africa	Women suffering from infertility	Qualitative	Severe psychological and emotional stress accompanies infertility. Coping strategies used by these women in this study included social withdrawal and women isolating themselves from social events and social gatherings, avoiding pregnant women and women with children, engaging in escape strategies on a psychological level and on a physical level. Employing escape strategies on a psychological level will involve deliberate thinking about strategies to avoid thinking about infertility.
Mousavi, Seyyedh Samira, et al. The Relationship Between Social Support And Mental Health In Infertility Women: The Mediating Role Of Problem-Focused Coping (Mousavi, S., Kalyani, M. N., Karimi,	Journal Of Applied Of Medical Science, 3,244-248. Iran: Shahid Chamran University,2015	Iran	Women with infertility	Cross sectional	The SEM equation found that the confidence interval, with one mediator (solving problem solving) did not reach zero which showed a statistically significant mediation effect. The pattern that emerges

S., Kokabi, R., & Piriaee, 2015)	shows the mediating role of problem solving coping. This research shows how social support can have direct and indirect effects on mental health in infertile women.

The study above found that the determinant factors that affect infertility in men and women can be seen in several categories, including:

1. **History of Reproductive Disorders**

   The category of factors that influence infertility is a history of reproductive disorders where from the study data that Endometriosis and PCOS (PolyCystic Ovarian Syndrome) are associated with impaired spermatogenesis and oogenesis that can lead to infertility (Lestari SW, 2016). PCOS is a condition in which the ovaries produce abnormal amounts of androgens, male sex hormones that are usually present in women in small amounts, the name polycystic ovary syndrome describes the many small cysts (fluid-filled sacs) that form in the eggs (ovaries) (Hopkins, 2021). The influence of internal factors in the body can also affect reproduction in both men and women the occurrence of infertility (Akbar, 2020). Genetic factors that play a role in hormonal differences in each partner andabnormalities of ovulation, tubes, pelvis, and uterus such as reproductive organ abnormalities in women (et al., 2017). In other studies, there are also studies conducted using the multivariate method that infertility inwomen with reproductive organ disorders (ovulation disorders, tubal and pelvic disorders and uterine disorders) increase the risk of infertility 11.67 times greater than women who do not have reproductive organ disorders (et al., 2017). In accordance with the findings that reproductive organ disorders have a major influence on infertility, so that other studies are needed beforehand in preparing for optimal reproductive health by regulating lifestyle and nutrition, which can prevent infertility by reducing the presence of reproductive disorders (Ahsan B, Hakim A, 2012).

2. **Prevention In Infertility**

   Studies that found that the prevention of infertility can be managed properly to minimize the occurrence of infertility include studies on the provision of nutritional intake such as giving red fruit oil can increase the folliculogenesis process by increasing the number of de Graaf follicles that have been tested on mice where there is a success rate in adding the process. folliculogenesis which can reduce infertility (Rahmawati, S., Tirtasari, K., Ningtyas, N. S. I. I., & Agustin, 2017) . Red fruit oil contentor Pandanus Conoideus is a typical Papuan plant that contains many compounds, one of which has essential compounds needed for the female reproductive system (Bahrah et al., 2019). Other studies have linked ion-deficient minerals and 1,25(OH)2D3- in deficient male rats showing smaller testes, characterized by histologic abnormalities, and significantly lower sperm counts, leading to male infertility (Sun et al., 2015). Changes in serum levels of these steroid hormones can lead to subsequent reproductive dysfunction by

interfering with the feedback regulatory mechanisms of the hypothalamic-pituitary-gonadal axis. In addition, coexpression of the cytoplasmic VDR (Vitamine D Receptor) and metabolic enzymes in Leydig cells (cells that produce testosterone in males) indicates that 1,25(OH)2D3 can affect the production of male reproductive hormones (Blomberg Jensen et al., 2010). Another study also found that treatment of infertile couples by being given remembrance relaxation therapy had an effect on reducing anxiety in essential hypertension patients with infertility after being given remembrance relaxation therapy so that infertility can be handled in anxiety problems (Wahyunita, 2014). Where relaxation techniques can reduce anxiety related to the presence of infertility, decrease anxiety in infertile couples (Retnowati, 2011).

3. *Problem Solving* In Couple's Mental Readiness

The determinant factors in infertility are many studies related to problem solving in mentally preparing couples to face infertility and prevention of infertility, such as studies on problem focused coping and emotional focused coping which have a role of 23.5% on marital satisfaction in wives who experience infertility (Aquindo, Coresy, Tedjo Prajogo, 2020). Coping mechanisms can be used by individuals to solve problems, effective coping will help individuals to be free from prolonged stress, one of which is coping with infertility (Tabong & Adongo, 2013). Another study related to couples experiencing infertility where severe stress greatly triggers low oocytes, so that the heavier the stress level experienced will produce fewer mature oocytes (Hendarto, 2015). Internal factors in the body can also be influenced by anxiety and thoughts that are too heavy, one of which affects the reproductive organs (et al., 2017).

Another study also found a solution to the problem of infertility in women where the support of the mother with active involvement can help reduce the pressure of infertility problems (Skvirsky et al., 2018). Another study found that the presence of partner support had a positive impact, while prolonged duration of infertility had a negative impact on partners' quality of life scores (Asazawa et al., 2019). This study examines the relationship between the support of a woman's mother and her partner, which contributes positively in dealing with physical, psychological and social problems in infertility (High & Steuber, 2014). Another study studies that there is a measurement parameter of stigma for infertile couples, which can prepare the couple mentally if there is stigma in the family and surrounding community (Çapık et al., 2019).

Another study studies that the belief of couples who experience long-term infertility results in stress, social isolation and depression. There is an increase in positive beliefs in partners to reduce stress, social isolation and depression (Naab PhD, M'phil, RN et al., 2013). Another study found that 58.9% of women reported high levels of anxiety with infertility (Ramamurthi, R., Kavitha, G., Pounraj, D., & Rajarajeswari, 2016). Another study that infertility problems in womensocial withdrawal practices and women isolate themselves from social events and social gatherings, avoid pregnant women and women with children, engage in escape strategies on a psychological level and on a physical level. Employing escape strategies on a psychological level will involve deliberate

thinking about strategies to avoid thinking about infertility which is a coping strategy in reducing depression in infertility problems (Pedro, 2015). Another different studyproblem-solving coping mediation, where this study demonstrates how social support can have direct and indirect effects on mental health in infertile women (Mousavi, S., Kalyani, M. N., Karimi, S., Kokabi, R., & Piriaee, 2015). These studies emphasize the importance of coping strategies so that infertile couples can solve problems by maintaining the privacy of each partner, in order to avoid severe pressure from external or social factors (Donkor et al., 2017).

4. *Lifestyle* (Lifestyle) Couple

This study is related to the couple's habits that can lead to infertility triggers. Studies show that there is a long smoking habit that is associated with sperm volume, where smoking for more than 10 years has an effect on decreasing sperm volume which can lead to a decrease in fertilizing an egg, resulting in infertility (Rusman, 2019). The content in cigarettes where nicotine when consumed for a long time and present in the body for a long time can interfere with reproduction, especially in men in the semen content (Amaruddin, 2012). The study of the relationship of lifestyle in the pattern of too much nutrition resulted in the presence of obesity factors that were not significantly associated with infertility (p = 0.235). However, being overweight is a factor that needs to be considered because the ethnic variation that causes being overweight is enough to increase the risk of metabolic disease disorders that trigger infertility (Tri Handini & Mirfat, 2018). Another study on the contrary that body mass index that is not normal up to 22.9 has a 3.33 times greater chance of experiencing infertility, where the results of the analysis show that there is a relationship between body mass index and female infertility and it is statistically significant (et al., 2017).

Conclusion

Determinants of infertility there are factors that need to be considered, from this study found 4 factors, namely: history of reproductive disorders prevention in infertility, Problem Solving the mental readiness of the couple and the lifestyle of the couple. These factors are the most widely studied studies that affect infertility, it is found that studies on problem solving mental readiness of couples can be prepared as early as possible for couples before marriage. The hope is to overcome the problem of joint infertility, both the infertility factor of both partners or one of the partners. Points of support and coping with mental health problem solving are very important for all couples to understand in infertility problems.

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Effect of Hypnopressure on Anxiety in Pregnant Women with Preeclampsia

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Abstract

Background: Preeclampsia in pregnancy is one of the dominant causes of maternal death in the world and will be seven times higher in developing countries. Anxiety is more common in pregnant women with preeclampsia than normal pregnant women and will aggravate that condition. Hypnotherapy can reduce anxiety and blood pressure, but not all pregnant women are easily suggested and show resistance to hypnotherapy. Objective: This study aims to prove the effect of hypnopressure on anxiety in pregnant women with preeclampsia. Methods: This study used queasy-experimental with pretest-postest design on two groups of study. Hypnopressure was a stimulation technique at yintang, neiguan and baihui points during hypnotherapy. It was applied one hour weekly for three weeks in intervention group, while the control group received integrated ANC as standard care and anti-hypertension. A consecutive sampling was conducted for 40 pregnant women with preeclampsia and divided into two groups or 20 women for each group. Instruments used to measure anxiety applied Zung Self-Rating Anxiety Scale (ZSAS). Data analysis used paired and independent t-test. Results: After the intervention of hypnopressure, anxiety score decreased significantly from 44.90 to 33.75 with p-value <0.001. In the control group, anxiety score was reduced form 45.65 to 42.70 with p-value <0.001. Hypnopressure could reduce anxiety score greater than control group. Conclusion: Hypnopressure has the effect of reducing anxiety levels in pregnant women with preeclampsia.

Keywords: acupressure, anxiety, hypnosis, preeclampsia

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Introduction

Preeclampsia is one of the risk factors in pregnancy that dominates cause of maternal death. Based on data from World Health Organization (WHO), preeclampsia has caused 14% of 289.000 maternal death.(World Health Organization, 2015) In Indonesia, the prevalence of preeclampsia in 2013 reached 25.8%.(Kemenkes RI, 2013) In Central Java, the number of maternal deaths in 2017 was 475 cases and the most common cause of maternal death was preeclampsia by 32.97%.(Dinas Kesehatan Provinsi Jawa Tengah, 2016)

Pregnant women with preeclampsia will have more severe anxiety than normal pregnant women.(Isworo et al., 2012) As many as 5.3% of pregnant women with preeclampsia have severe anxiety, while in normal pregnant women it has only 0.7%.(Kordi et al., 2017) The other studies stated that anxiety in pregnant women would increase the incidence of preeclampsia 7.84 times. If anxiety occured in pregnant women with preeclampsia, it will certainly aggravate the condition of the preeclampsia.(Isworo et al., 2012)

If anxiety in preeclampsia untreated properly, it will give some impact for mother and fetal wellbeing. It was causing blood vessel spasm getting worse, thus blood pressure more increase.(Trisiani & Hikmawati, 2016) Impact on the fetus are stunting, premature birth, Low Birth Weight, low Apgar score and stillbirth.(Backes et al., 2011)

Perceived anxiety in pregnant women generally was fear of premature birth, complications of pregnancy and childbirth that can cause death and guilt feelings.(East et al., 2011) Unconsciously, that fear will be entered in the subconscious mind and eventually embedded as a negative program.(Kuswandi, 2011) Anxiety will also enhances the work of the sympathetic nervous system.(Guyton & Hall, 2013) The brain will send signals to the pituitary gland which controls the body to increase cortisol and epinephrine hormone. The increasing levels of adrenaline and nor adrenaline hormones causes the body's biochemical dysregulation, so resulting in physical tension in pregnant women and triggering the heart to pump blood faster.(Southwick & Charney, 2012) It will certainly aggravate the condition of pregnant women with preeclampsia.

There are two methods to reduce anxiety levels, pharmacologically or non-

pharmacologically. The administration of benzodiazepines as anti-anxiety are closely related to preterm birth and low birth weight.(Shyken et al., 2019) Non-pharmacological methods that can be done are murrotal therapy, hypnosis, massage, acupressure, relaxation, aromatherapy and dzikir therapy. The non-pharmacological approach was stated can help in reducing the dose of anti-hypertensive drugs.(Hikayati, Flora R, 2012)

Based on a systematic review by Catsaros & Wendland (2020), hypnotherapy as many as 2-6 times meeting in pregnancy could have a positive impact on the experience of women during childbirth.(Catsaros & Wendland, 2020) Stimulation of the wrist (H7) was reported could improve sleep quality and reduce anxiety of pregnant women in the third trimester of pregnancy.(Neri et al., 2016) Research by Lu Dominic (2013) compared the effectiveness of several meridian points in reducing anxiety and the most effective points in increasing relaxation was yintang point, meanwhile neiguan points also could reduce tension.(Lu & Lu, 2013)

Hypnotherapy can reduce the level of anxiety in pregnant women, but not all pregnant women are easily suggestible and show resistance to hypnosis. Giving acupressure during hypnotherapy can help overcome the resistance to hypnosis by facilitating relaxation conditions.(Schiff et al., 2007) The more in a state of hypnosis, it will easier for pregnant women to be given suggestions.

Efforts to reduce anxiety can also be done by emphasizing the acupressure point through the regulation of anxiety hormones. However, negative record in subconscious mind will remain, so reprogamming through hypnotherapy is needed. Therefore, hypnotherapy and acupressure need to be done simultaneously as a single unit of action because it has potential synergism. This study aims to prove the effect of hypnopressure on anxiety in pregnant women with preeclampsia.

Figure 1. Yintang

Figure 2. Neiguan

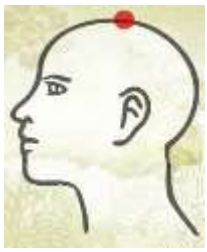

Figure 3. Baihui

Methods

The design

This research was a quasi-experimental study with a non randomized pretest posttest with control group design.

Settings

The study was conducted for 3 weeks between December-March 2020 in the working area of Bulu, Dharmarini & Pare Health Center, Temanggung. Intervention was given at the home of each respondent.

Research Subjects

Forthy respondents were recruited using consecutive sampling and divided into intervention groups (20 respondents) and control groups (20 respondents). Inclusion criteria for the samples included: systolic blood pressure 140-160 mmHg, diastolic blood pressure 90-100 mmHg, gestational age> 20 weeks, anxiety score> 20, getting nifedipine therapy, not have severe depression problems and domiciled in the study area.

Intervention

Hypnopressure at the meridian points of yintang, neiguan and baihui was performed 3 times for 3 weeks or once a week, ranged about 60 minutes. It was conducted at each respondent's home by two hypnotherapy and acupressure certified enumerators. In this study, the intervention group received an integrated ANC and hypnopressure, while the control group was only given an integrated ANC.

Instruments

The Zung Self-Rating Anxiety Scale (ZSAS) questionnaire was used to measure anxiety in preeclampsia pregnant women. The reliability of the ZSAS instrument is 0.87. Anxiety was measured before (pretest) and three weeks after intervention (posttest).

Ethical consideration

Ethical clearance was obtained from the Health Research Ethics Commission Dr. Moewardi with Number 1.396 / XII / HREC / 2019. This research has obtained permission from National Unity and Politics of Temanggung, Temanggung Health Service and the three related health centers. Each respondent obtained information about the study and signed an informed consent before data collection.

Data Analysis

Data analysis used paired and independent T-tests to determine the effect of hypnopressure on anxiety in preeclampsia pregnant women.

Result and Discussion

Table 1 showed that characteristics of respondents in the intervention and control group were mostly 30-33 years old, gestational age 26-28 weeks, consumed nifedipine obediently, not working, primary education levels and multiparous women. Levene's test showed that all variables were homogeneous with p-value> 0.05 which means that there were no differences in the characteristics of respondents between both groups.

In this study, the characteristics of respondents were seen based on maternal age, gestational age, medication adherence, education levels, working status and parity that affect anxiety in preeclampsia pregnant women. Table 1 showed the average age of pregnant women with preeclampsia in the intervention and control groups was 33 years and 30 years. In the case of preeclampsia, age is not the only risk factor, but there are other factors.(Cunningham, 2009) The results of the study showed the number of preeclampsia in the healthy age range because the process of pregnancy and childbirth most often occurs in the productive age of 20-35 years.

The average gestational age was the end of the second trimester of pregnancy. Gestational age is closely related to the incidence of preeclampsia which is a pregnancy-specific syndrome and occurs after the age of 20 weeks.(Cunningham, 2009) The majority of respondents obeyed in taking nifedipine. Compliance with taking drugs plays a role in controlling blood pressure thereby reducing and preventing the risk of hypertension complications.(Hairunisa, 2014) The education level of respondents in both groups was mostly primary education, and the number of children ever born was more than one (multiparaous).

Table 1. Characteristics of the respondents based on age, gestational age, medication adherence, education levels, working statuss and parity

Variable	Group		*p-value*
	Intervention n = 20	Control n = 20	
Age (year)			
Mean ±SD	33.75 ± 5.19	30.90 ± 5.92	0.114*
Min-Max	20-41	18-41	
Median	33	30	
Gestational age (week)			
Mean ±SD	26.95 ± 4.86	28.45 ± 4.70	0.328*
Min-Max	20-35	21-35	
Median	27	29.50	
Medication adherence ∑ (%)			
Obeyed	14 (70)	15 (75)	0.723**
Not obeyed	6 (30)	5 (25)	
Education levels ∑ (%)			
No education	1 (5)	1 (5)	
Primary	15 (75)	10 (50)	0.351**
Secondary	3 (15)	8 (40)	
High	1 (5)	1 (5)	
Working status ∑ (%)			
Working	9 (45)	7 (35)	0.519**
Not working	11 (55)	13 (65)	
Parity ∑ (%)			
Nulliparaous	4 (20)	6 (30)	
Primiparaous	7 (35)	7 (35)	0.723**
Multiparaous	9 (45)	7 (35)	

**Mann-Whitney Test **Chi-square Test SD:Standart Deviation*

Table 2. The effect of hypnopressure in anxiety scores

Group	Pre	Post	p-value
	Mean ±SD	Mean ±SD	
Intervention	44.90 ± 6.943	33.75 ± 9.635	0.001
Control	45.65 ± 6.659	42.70 ± 5.983	0.001

Paired T-test

Table 3. Differences in anxiety scores after an intervention

Group	Mean ±SD	p-value	Effect size
Intervention	11.15 ± 4.614	0.001	1.116
Control	2.95 ± 2.892		

Independent T-test

Table 2 showed that there were differences in anxiety scores of pregnant women with preeclampsia in the intervention group and the control group (p-value >0.05) because the intervention group was applied hypnopressure. In contrast, the control

group only received standard care. However, hypnopressure reduced anxiety scores greater (11.15) than control group (2.95). Hypnopressure has effect on decreasing the anxiety in pregnant women with preeclampsia and effect size 1.116 (Table 3).

The results of this study in line with previous studies conducted by Tama (2019), hypnosis in pregnant women with preeclampsia could reduce anxiety effectively.(Tama, 2019)Other studies conducted by Beevi (2016) also provided the same results about the effectiveness of hypnosis in reducing pregnant women anxiety.(Beevi et al., 2016) Anxiety in high-risk pregnant women could also be significantly reduced after giving hypnotherapy and classical music therapy 8 times in two weeks with a duration of each meeting 15 minutes.(Asmara et al., 2017)

Mood disorders often occured by hypertensive mothers and even more severe compared to normal pregnant women without complications. If the anxiety occured by pregnant women with hypertension will certainly aggravate the condition of hypertension.(Isworo et al., 2012) Therefore, pregnant women must maintain a balanced body and mind calm and comfortable, so they can work in balance and create a calm and pleasant pregnancy. One way to create calm conditions can be done through hypnopressure.

Hypnosis in pregnant women with will make relaxation, so it affects the body's system and creates a sense of comfort and a sense of calm.(Kuswandi, 2011) The patient's relaxed condition will stimulate the secretion and release of natural relaxation hormones from the body. Stimulated hormones then follow the systemic blood circulation which ultimately makes the patient feel more relaxed, the patient becomes more comfortable and finally the patient's anxiety becomes reduced.

This study consistent with the results of previous studies by Jannah (2017) about the effect of hypnoanxiety on reducing anxiety in pregnant women. Hypnotherapy could produce the hormone serotonin which can inhibit the transmission of anxiety impulses in the central nervous system, so that anxiety can be reduced.(Jannah et al., 2017) Hypnotherapy also works on the limbic system which will be delivered to the nervous system which activates the work of

the parasympathetic nerve which functions to reduce the tension in the muscles of the body, reducing the frequency heart rate, blood pressure and pulse.

Negative messages that were continuously received by pregnant women will be processed as something real and become part of the mother's belief system that can disrupt the body's chemical system. That is because the sympathetic nerves not only respond to real threats but also to newly imagined threats.(Gunawan, 2009) Therefore, the administration of hypnopressure to hypertensive pregnant women aims to reprogramming the negative recording in the subconscious mind.

When a pregnant woman with preeclampsia was given hypnopressure, there was a transfer of brain waves into alpha or theta waves. In the Theta condition a person feels asleep, the sounds outside can no longer be heard properly, but instead they can be heard by the subconscious mind very well, and become a permanent value, because it is not realized by the conscious mind.(Majid, 2013) Through hypnopressure, a positive suggestion that was included in the subconscious could make the level of anxiety of pregnant women decreased. The results of this study can further strengthen the opinion that programs in the mind that have been implanted through affirmations or suggestions in a hypnotic state, can be a trigger for permanent change.(De Benedittis, 2015)

Giving stimulation at the acupressure point further strengthens the effects of hypnosis given. That was because acupressure could facilitate the conditions of relaxation of pregnant women so that it was easier to be given suggestions. Relaxation due to hypnopressure can help pregnant women achieve and maintain a deep condition of hypnosis.(Schiff et al., 2007) The results of this study support previous research by Nugraha (2018) which combined several acupressure points to reduce anxiety. There was a significant difference in anxiety score change between the hypnopressure anxiety score and the control group, the hypnopressure anxiety score was lower than the control group.(Nugraha et al., 2018)

Acupressure in anxiety patients combined several acupuncture points. The stimulated points were the Yintang,

Shenmen, Neiguan, Tay Yang and Shaofu points. Stimulation given at the combination of the meridian points will be continued to the posterior hypothalamus. The posterior hypothalamus would produce the hormone endhorphine, which has a major effect on comfort and relaxation. Therefore the client will become more relaxed, and anxiety decreased.

Conclusion

Hypnopressure at the meridian points Ex-HN3 (yintang), P6 (neiguan) and GV20 (baihui) one hour weekly for three weeks affects in reducing anxiety levels in pregnant women with preeclampsia.

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Intensity of The Use of Gadgets to Attention Deficit Disorder in Children

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Abstract

The demands of the times and the many benefits of gadgets make many parents start introducing gadgets from an early age. The use of gadgets can have an impact on children, be it a negative impact or a positive impact. The negative impact felt by children in terms of motor, accepting learning and difficulties in socializing with other people. Attention disorder is one of the main psychiatric problems that is often found in children under 7 years of age. In some people, they still cannot recognize this disorder even though this disorder can be found in everyday life, both in preschool children, adolescents, and even adults. The purpose of this study was to determine the effect of the intensity of the use of gadgets on disruption of concentration of attention in elementary school children. This type of research is a quantitative study with a correlational analytic design and a cross sectional approach. Respondents taken in this study were students in elementary schools in the Sleman Regency in the age range 7-10 years and their mothers using the quota sampling technique. Data analysis using chi square. Based on the results of the calculation of the chi square test, it is known that the p value is 0.000 so that it can be concluded that the p value is 0.000 <0.05. From the results of the bivariate analysis, it can be concluded that there is an effect of the intensity of the gadget on attention disruption in school-age children. It is hoped that parents and teachers can monitor the intensity of the use of gadgets in children.

Keywords: intensity of gadgets use, attention disorder, elementary school children

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Introduction

The development of the times is undeniable that the development of information and communication technology is taking place more rapidly and its use has reached various walks of life. In the past, gadgets / cellphones were only used among adults to communicate and work matters only. But now, not only among adults, but teenagers and schoolchildren have also used gadgets / cellphones (Syahra, 2016).

The demands of the times and the many benefits of gadgets have made many parents who have begun to introduce gadgets from an early age. Nowadays we can see firsthand that many children under the age of 6 years are already good at using gadgets. This is in accordance with the results found by the Kapersky Lab that children prefer to spend their time watching movies, listening to music and browsing social media during their school holidays (Fachrizal, 2018).

The use of gadgets can have an impact on children, be it a negative impact or a positive impact. This is supported by the results of Simamora's research (2016) that the use of gadgets in children according to parents is more negative. As for the negative impact felt by the child in terms of motor, accepting learning and difficulties in terms of socialization with others (Simamora, A. S. M. T., Suntoro, I., & Nurmalisa, 2016).

Each individual will go through stages of growth and development in his life, that is, from the time of the embryo until the end of his life the individual will experience changes both in size and development. The speed of growth and development of each individual from one another varies, depending on the factors that influence it during the growth and development process (Supartini, 2014).

Special attention to the child as an individual who is still in developmental age is certainly no less important, since childhood is a process to maturity. Some cases that are often found in society such as events that can cause trauma to children include anxiety, anger, and others. If this is allowed to continue, it can have an impact on the child's psychology and will certainly interfere with the child's development. In addition to physiological needs, the child is also an individual who needs psychological, social and spiritual needs. Meanwhile, the

child is said to be prosperous if the child does not feel a psychological disorder (Hidayat, 2019).

Attention deficit disorder is one of the main psychiatric problems often found in children under the age of 7 years. In some communities, both in the family environment, schools, and clinics are still unable to recognize this disorder even though this disorder can be found in everyday life, both in preschool age children, adolescents, and even adults. If this disorder does not get an early intervention then it can lead to worse psychosocial problems (Novriana et al., 2014) (Amiri et al., 2013).

Method

This type of research is quantitative research with a research design using correlational analytics and a cross-sectional approach. The respondents taken in this study were students in elementary schools located in the Sleman Regency area in the age range of 7-10 years and their mothers with quota sampling techniques. Data collection was carried out online, namely through the Whatsapp application and through google forms considering that the research was carried out during the Covid-19 pandemic. Before conducting the research, the researcher also conducted ethical clearance at the Health Research Ethics Committee of 'Aisyiyah University Yogyakarta, which was recorded in number 1621 / KEP-UNISA / IV / 2020. Data analysis using chi square.

Result and Discussion

From the results of the study, the following data were obtained:

Table 1. Characteristic of Responden

Characteristic	Frequency	Percentage
Age of children		
7 years old	27	33,8%
8 years old	39	48,8%
9 years old	14	17,4%
Total	80	100%
Sex of children		
Boy	23	28,8%
Girl	57	71,2%
Total	80	100%
Age of mother		
25 – 30 years old	32	40%
31 – 35 years old	40	50%
36 – 40 years old	7	8,8%
>40 years old	1	1,2%
Total	80	100%
Education of mother		
Diplome	18	22,5%
Bachelor	10	12,5%

Characteristic	Frequency	Percentage
Primary School	2	2,5%
High School	49	61,2%
Junior High School	1	1,3%
Total	80	100%
Work of mother		
Working	77	96,2%
Not working	3	3,8%
Total	80	100%
The biological mothers		
Biological mothers	80	100%
Jumlah	80	100%

(Primary Data, 2020)

Based on table 1, it is known that the age frequency distribution of students who are the most respondents is with the age of 8 years as many as 39 people (48.8 %), the sex of students is the most girl as many as 57 people (71.2%), the age of mothers is the most in the range of 31-35 years as many as 40 people (50%), the most maternal education is high school there are 49 people (61.2%), working mothers as many as 77 people (96.2%), and all were the biological mothers of all 80 students (100%).

In addition to the characteristics of respondents, in this study, data on parenting from parents to children were also obtained. The following is data on parental parenting:

Table 2. Parental parenting

Parenting	Frequency	Percentage
Democratic	57	71%
Non democratic	23	29%
Total	80	100%

(Primary Data, 2020)

Based on table 2 of 80 respondents, it was found that as many as 57 people (71%) applied democratic parenting in parenting their children, while the remaining 23 people (29%) adopted non-democratic parenting, which in this case was authoritarian and permissive.

Table 3. Crosstab of intensity of the use gadget to attention deficit disorde

Intensity of the use of gadgets	Attention Deficit Disorder		Percentage
	attention deficit disorder suspected	Not attention deficit disorder	
Ideal	16 (20%)	19 (23,75%)	35 (43,75%)
Not ideal	40 (50%)	5 (6,25%)	45 (56,25%)
Total	56 (70%)	24 (30%)	80 (100%)

(Primary Data, 2020)

Table 4. Result of chi square analysis

Asymp. Sig. (2-sided)	Contingency Coefficient
0,000	0,423

(Primary Data, 2020)

From the data above, data was obtained that as many as 35 children (43.75%) use gadgets ideally, namely ≤ 1 hour / day, while 45 children (56.25%) use gadgets not ideally, namely the duration of > 1 hour / day. In the data on attention centering disorder, it was found that as many as 56 children (70%) were likely to have attention deficit disorder and 24 children (30%) had no possibility of attention deficit disorder.

Based on the calculation results of the chi square test, it is known that the p value is 0.000 so that it can be concluded that the p value is 0.000 < 0.05 . From these results it can be stated that there is an influence of gadget intensity on attention deficit disorders in school-age children.

Discussion

1. Characteristic of responden

The majority of children's ages in this study were 8 years old 39 years old (48.8%). Schoolchildren are children who are between the ages of 7-12 years. Schoolchildren are usually at that age entering in elementary school. At the age of 7-12 years is a golden age with a golden growth period of children that occurs once in human life. Children respond and quickly learn new things by exploring the surrounding environment (Suana, 2014). The results of a similar study conducted by Trinika (2015) regarding the negative impact of gadget use obtained significant results between the use of gadgets on the psychosocial development of schoolchildren with a p value of 0.005 and OR 0.303 and with high exposure to gadgets of 42.1% in school-age children. Children of school age are more likely to use the internet/gadgets to watch videos. Gadgets provide stimuli through visual and auditory senses that can cause the child's mental instability and inattention to other things (Nurmasari, 2016).

This is in accordance with the results of Jamieson (2013) research which states that there have been significant changes in children over the past four decades, including children's entertainment media (e.g. cartoons, TV shows, and computer games) that can more quickly affect violence. Therefore, at

the age of 7-12 years is very prone to emotional mental deviations, one of which is the disturbance of concentration of attention in school-age children (Bushman et al., 2013).

Based on the results of research on gender, it was found that the majority of children with a girl gender got higher results than the boy sex, namely 57 children (71.2%). Research explains that sex differences in media preferences and behaviors related to attention deficit disorder in children. The results of this study are inconsistent with previous studies showing that, compared to girls, boys more often show attention deficit disorder-related behaviors (Anderson et al. 2010). A similar prevalence was also obtained in a study in 2005-2006 at Sanglah Hospital, there were 43 boys with attention deficit disorder (38.7%) and the number of girls with attention deficit disorder 8 children (7.2%) (Indriyani et al., 2016). Based on other literature, the ratio of men and women suffering from attention deficit disorder is dominated by men where the diclinic is 9:1, while in the community it is around 4:1 (Hebrani & Behdani, 2007).

The next characteristic is the age of the mother, in this study the majority of mothers aged 31-35 years as much as 40 (50%). Where it is concluded that the mother's age of 31-35 years has a great influence on the disturbance of concentration of attention in children. The age of the mother in this category, the attention and vigilance of the use of gadgets towards children is not paid attention to, especially mothers who carry out tasks or work outside the home.

Another characteristic that can influence the occurrence of attention deficit disorder in schoolchildren is the mother's education. The results of this study, the majority of maternal education was high school as many as 49 (61.2%). Maternal education in respondents to this study greatly influenced the length of time for gadget use in children. This is expected to be allowed by mothers to get sufficient information about the effective length of time to use gadgets. This is in accordance with Ariani's research (2012) the level of parental education is very influential on child development. The level of education of high school parents is a

risk for developmental delays in children. This is due to the knowledge and ability to provide less stimulation than mothers with a high level of education. The level of education of parents, especially mothers, greatly affects the parenting style of their children, healthy living behaviors, their education and another (Ariani & Yosoprawoto, 2012).

The majority of maternal occupations in this study were working mothers with a total of 77 (96.2%). This agrees with the research of Murtaza (2017) which found that the length of time worked affects parents' attention to children about excessive use of gadgets will increase behavioral disorders in children (Murtaza, 2017).

Another characteristic that can influence the occurrence of attention deficit disorder in children is the biological mother. With attention and motivation and supervision from biological mothers, the use of gadgets can be reduced in duration ≥ 2 hours. This study generally aims to determine the effect of the intensity of gadget use on attention deficit disorders in children. The results of the study were supported by previous research which explained the results of the chi-square statistical analysis test, which found that there was an influence between the intensity of gadget use and attention deficit disorders in schoolchildren. According to (Beyens et al., 2018) the study concluded that there is a relationship between the use of screen media in children and attention deficit disorder behavior (Beyens et al., 2018).

2. Parental parenting

Parental parenting or parenting, namely how parents treat children, educate, guide and discipline and protect children in achieving the maturation process to efforts to form good development in children.

The results of this study also explained that parental caregiver patterns can affect the occurrence of suspected attention deficit disorder. Based on the results of the study, it was found that there were as many as 57 people (71%) applying democratic parenting in parenting their children, while the remaining 23 people (29%) applied non-

democratic parenting, which in this case was authoritarian and permissive.

The results of previous studies that are appropriate so that they can be supportive are the studies carried out showing that authoritarian and permissive parenting patterns have a meaningful relationship with rebellious behavior in children with attention deficit disorder, both towards parents and teachers at school. This happens because authoritarian parenting makes the child have to definitely follow the parents' orders while the parents do not accept the child's reason for not following the orders. Permissive parenting, parents always fulfill the child's orders without knowing the impact that will occur. Caring for and protecting children is the main obligation as a parent. Permissive parenting usually has a dispute with the child before fulfilling the child's will. This can make the child a rebellious child (Kaunang et al., 2016).

According to Dariyo (2017) permissive parenting is a parenting style that shapes a child's personality by providing very loose supervision. In addition, permissive parenting also gives their children the opportunity to do things without sufficient supervision from parents. As for the tendency of parents not to reprimand and warn children when the child is in danger, very little guidance is given. These are some of the factors that can influence the occurrence of emotional deviations, including in the case of suspected attention deficit disorder (Dariyo, 2017).

The family is the first environment that influences various aspects of an individual's development, including his social development. The conditions and procedures of family life are a conducive environment for socialization. The educational process aimed at developing the personality of the toddler is more determined by the family, social patterns, the ethics of interacting with others are largely determined by the family.

Parental care or better known as parenting, namely how parents treat children, educate, guide and discipline and protect children in achieving the maturity process, to efforts to form norms expected by society in general (Casmini, 2017).

Yusuf (2010) concluded into three parenting patterns, namely authoritarian, permissive and authoritative/democratic parenting. Authoritarian parenting has characteristics of 1) low "acceptance" attitude, but high control, 2) likes to punish physically, 3) be commando (requires/instructs the child to do something without compromise), 4) be rigid (hard), 5) tend to be emotional and be resistant. Then, permissive parenting has the characteristics of 1) a high "acceptance" attitude, but low control, and 2) gives the child the freedom to express his motivation/desire. Meanwhile, authoritative parenting has characteristics 1) the attitude of "acceptance" and control is high, 2) being responsive to the needs of the child, 3) encouraging the child to express opinions or questions, and 4) providing an explanation of the impact of good and bad deeds (Yusuf, 2010).

3. Intensity Of The Use Of Gadgets To Attention Deficit Disorder In Children

This study shows that the use of gadgets is high, namely ≥ 1 hour / day and there is a disturbance of concentration of attention in school children. The results of this statistical analysis used are chi-square tests with a p-value of 0.000, there is a significant influence between the intensity of gadget use on attention deficit disorders in schoolchildren. The intensity of gadget use ≥ 1 hour / day is likely to have disturbances in concentration of attention in children.

Based on the results of the study, it is explained that exposure to television and video games has a great influence on attention disorders. The average number of exposures to television and video games that cause attention disorders in children (Swing et al., 2010).

The results of this study are in accordance with the research of Sari and Mitsalia (2016), where the average child uses gadgets to play games instead of being used for other things. Few use to watch cartoons when using gadgets. The applications that children access are mostly watching animated videos / movies and playing games and only a few are used for learning media. Even though gadgets can have a positive impact on children such as being an interesting learning medium, learning English easier,

improving logic through educational interactive games (WIJANARKO, I. J., & Setiawati, 2016).

Children's interaction with electronic technology reduces movement activity because the concept of technology is to facilitate human life so as to limit physical activity (Firdastin Ruthnia Yudiningrum, 2011). Negative impacts can arise, including that children's growth and development are not optimal because children sit too long engrossed in gadgets. The growth of the child becomes difficult to speak clearly due to watching too many cartoons or online games for which there is no verbal communication, the child becomes aggressive, the child becomes less concentrated in learning and the child experiences addiction to always use gadgets (Mardiya, 2017).

The results of this study are supported by research conducted by Beyens, Valkenburg, Piotrowski, (2018) obtaining the result that there is a relationship between the use of screen media in children and the behavior of attention deficit disorder (attention problems, hyperactivity, and impulsiveness). The violent nature of the media screen affects children. Induced media can in fact increase the likelihood of behaviors related to attention deficit disorder. Children who are unable to control their desires when using media screens (Beyens et al., 2018).

In addition, there are several factors that indicate a positive relationship between media use and behaviors related to attention deficit disorder (i.e. attention problems, hyperctive and impulsiveness). The use of screen media can inhibit language disorders due to visual processes and the use of language such as adults that are not in harmony with the child's cognitive abilities. Media-induced language development is assumed to interfere with the consolidation of self-regulation so as to lead to behavior related attention deficit disorder (Nikkelen et al., 2014)

Another study explained that after exposure to the effects of the media can affect 3 responses that occur, namely cognitive (paying attention and processing certain media content), emotional (affective reactions, such as fear and sadness during or after watching or playing), and stimuli (physiological arousal

temporarily or only after watching or playing) [24]. It can lead to the performance of aggressive behavior characterized by impulsivity and poor inhibitory control, in the end it can lead to the behavior attention deficit disorder (Beyens et al., 2018).

Research by Sukmawati (2019) regarding the influence of gadgets on attention deficit disorders, subjects have a high intensity in playing gadgets so that they have a negative impact such as decreased concentration, laziness in doing physical activities, decreases in socialization, addiction, radiation disorders cause obstacles in brain development, cognitive development becomes hampered, inhibits language ability, children imitate the behavior of existing gadgets (Sukmawati, 2019).

The results of Khayati research (2018) also concluded that there is a relationship between gadget use and the risk of attention deficit disorder and hyperactivity in pre-school age children in ABA III Gunungan Kindergarten, Bareng Lor. There are 81.1% of children using gadgets < 2 hours per day and 82.2% of children are normal and do not have the risk of attention deficit disorder. The significance value is p=0.000 so $p < \alpha$ ($\alpha = 0.05$) (Setianingsih, 2018).

Gadgets, whose applications use the internet, at first glance, have many uses and advantages, but it is undeniable that gadgets also have a negative impact (Oneto E, 2019). Children are considered to have played excessively with gadgets if in a day playing with gadgets for more than two hours. If the gadget is taken away, the child will be very angry, cry excessively or shout (tantrum) [20]. Emotional behavior (in relation to oneself) that begins to diverge, if it is not immediately overcome, then the next level is a disturbance in social behavior. The most noticeable impact of gadgets on the child is a decrease in sociability. Children who are too engrossed in playing with gadgets become indifferent to the surrounding environment, so they do not understand the ethics of socializing (Febrino MA, 2017).

Conclusion

From the results of this study, it was obtained:

1. Most of the age of students who were the most respondents were with the age of 8 years as many as 39 people (48.8 %), the sex of students was the most girl as many as 57 people (71.2%), the age of the most mothers in the range of 31 - 35 years as many as 40 people (50%), the most maternal education of high school was 49 people (61.2%), there were 77 working mothers (96.2%), and all were biological mothers of all 80 students (100%).
2. Total of 57 parents (71%) adopted democratic parenting in parenting their children, while the remaining 23 parents (29%) adopted non-democratic parenting, which in this case was authoritarian and permissive.
3. 3. As many as 35 children (43.75%) use gadgets ideally, namely ≤ 1 hour / day, while 45 children (56.25%) use gadgets not ideally, namely the duration of > 1 hour / day. In attention deficit disorder, it was found that as many as 56 children (70%) were likely to have attention deficit disorder and 24 children (30%) had no possibility of attention deficit disorder.
4. Based on the results of the chi square test, it is known that the p value is 0.000 so that it can be concluded that the p value is 0.000 < 0.05. From the results of the bivariate analysis, it can be concluded that there is an influence of gadget intensity on attention deficit disorders in children.

For parents and teachers, it is expected to be able to monitor and limit the intensity of gadget use in children, although on the other hand sometimes gadgets can help children in the learning process, so that the use of gadgets in children can be done ideally and effectively.

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Level of Student Knowledge about Obesity in Adolescents at SMA Negeri 3 Mataram

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Abstract

Obesity is a complex disorder of appetite regulation and energy metabolism that is controlled by several specific biological factors. The prevalence of obesity in several Southeast Asian countries shows a high percentage. Indonesia ranks second after Singapore with the most significant number of obese adolescents, 12.2%, then Thailand (8%), Malaysia (6%) and Vietnam (4.6%) (Unicef, 2012). The emergence of nutritional problems in adolescents is basically due to wrong dietary behaviour, which is an imbalance between nutritional consumption and recommended nutritional adequacy. This research uses a descriptive-analytic design with a cross-sectional approach. The population was all students of class XI of SMA Negeri 3 Mataram, totalling 430 people. The sample was 86 people with simple random sampling technique. The variable used in this study is the level of student knowledge about obesity in adolescents. The data collection method uses a questionnaire that has tested for validity and reliability. Data analysis uses univariate analysis. The results showed that of the 86 respondents there were students with sufficient knowledge of 44 people (51.2%), most students aged 15-17 years were 74 people (86%), the majority of students were female, namely 57 people (66, 3%), and most students with average body mass index are 51 people (59.3%). Suggestion: students are expected to be able to increase their knowledge and control food intake both in the amount of food, type of food and frequency of meals to achieve the ideal BMI.

Keywords: knowledge; obesity; adolescents

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Introduction

Nutrition is an important part of the health sector and gets serious attention from the government. Good nutrition is the foundation for public health. The influence of nutritional problems on growth, development, intellectual, and productivity shows the large role of nutrition for human life. If there is a nutritional disorder, both undernutrition and overnutrition, growth will not take place optimally (N. Syahrir et al., 2013). The emergence of nutritional problems in adolescents is basically due to incorrect nutritional behavior, namely an imbalance between nutritional consumption and recommended nutritional adequacy. Some problems related to nutrition found in adolescents include a body mass index (BMI) less than the normal limit or vice versa, having an excessive BMI (obesity), and anemia as well as problems related to eating behavior disorders in the form of anorexia nervosa and bulmia (Sulistyoningsih, 2011).

The level of knowledge of adolescent nutrition is one of the factors that can affect the occurrence of overnutrition in adolescents (WHO, 2015). Knowledge or cognitive is a very important domain for the formation of one's behavior (Notoatmodjo, 2012). Lack of nutritional knowledge in most adolescents who are overweight (obesity) allows adolescents to be less able to choose nutritious food menus. Most of the incidence of nutritional problems can be avoided if adolescents have sufficient knowledge about maintaining nutrition and regulating eating (Soegih, 2009). Obesity is a complex disorder of appetite regulation and energy metabolism which is controlled by several specific biological factors. Physiologically, obesity is defined as a condition with abnormal or excessive fat accumulation in adipose tissue so that it can interfere with health (WHO, 2016). The causes of obesity are multifactorial, meaning that there are many factors that cause obesity to occur. Several factors cause obesity such as genetic factors, health, drugs, environment, psychology (Naab F, Brown R, 2013). Knowledge of nutrition, hormonal and socioeconomic levels (Juliantina, F., Citra, DA, Nirwani, B., Nurmasitoh, T., Bowo, 2014). A person's environmental factors also play a significant role, this environment includes diet and physical activity (Mardan & Suarnianti, 2014; Soegih, 2009).

Obesity is a risk factor for cardiovascular disease and has a contribution to the occurrence of other diseases, such as hypertension, diabetes mellitus, gallstones and others. The impact of obesity in childhood has a high risk of becoming over nutrition in adulthood. Adolescents who are

overweight have a 70% risk of being overweight or obese as adults (Mardan & Suarnianti, 2014; Soegih, 2009). The government's effort to overcome nutritional problems is to apply a balanced nutritional composition to food which is depicted in a conical food pyramid, with the main parts being three types of food with three different uses, namely as energy substances such as carbohydrates, regulatory substances such as vegetables and fruit. fruits, as well as building blocks such as animal foods, in preventing obesity by implementing interventions such as health promotion, increasing physical activity, limiting small movements, watching TV, limiting food in the form of junk food, fast food, soft drinks and fulfilling balanced nutrition, balanced nutrition. that must be met, namely by consuming foods that contain nutrients and nutrients adapted to the body's needs, and still paying attention to various bodies, and still paying attention to various principles such as diversity of types of food, body activities, and ideal body weight (Kemenkes, 2018). The role of midwives in the prevention and control of overweight and obesity in school children is a comprehensive effort that involves stakeholders in the region. Stakeholders have roles in accordance with their responsibilities and authorities, through coordination with the head of the Puskesmas. Activities for the prevention and control of overweight and obesity in school children include promotion, discovery and case management which in its implementation involves children, parents, teachers, school committees and stakeholders (Riskesdas, 2018).

According to the World Health Organization (WHO), in 2014, more than 1.9 billion adults aged > 18 years were overweight. Of these, more than 600 million are obese. Overall, about 13% of the world's adult population (11% men and 15% women) were obese in 2014. The worldwide prevalence of obesity doubled between 1980 and 2014 (WHO, 2015). The incidence of overweight and obesity in most countries in Asia has also increased in recent decades (Renganathan, 2013), with a prevalence of overweight 14% and obesity 3% for the Southeast Asian region (WHO, 2016). The prevalence of obesity in several Southeast Asian countries also shows quite high. Based on the United Nations Children's Fund (UNICEF) 2012 Indonesia ranks second after Singapore with the largest number of obese adolescents at 12.2%, then Thailand at 8%, Malaysia at 6% and Vietnam at 4.6% (UNICEF, 2012).

Method

This study uses a descriptive analytic design with a cross sectional approach. The population is

all students of class XI SMA Negeri 3 Mataram as many as 430 people. The sample is 86 people with simple random sampling technique (Sugiyono, 2012). The variable used in this study is the level of student knowledge about obesity in adolescents. Methods of data collection using a questionnaire that has been tested for validity and reliability. Data analysis used univariate analysis (Notoatmodjo, 2012).

Result and Discussion

1. Characteristics of respondents

Based on table 1, it can be seen that most of the respondents aged 15-17 years, namely 74 respondents (86%) and a small proportion of respondents aged 18-21 years, namely 12 respondents (14%). Based on table 2, it can be seen that some of the students are female, namely 57 respondents (66.3%). Based on table 3, it can be seen that most respondents have a normal body mass index, namely 51 respondents (59.3%) and a small proportion of respondents have an obese body mass index, namely 1 respondent (1.2%).

2. Characteristics of respondents based on knowledge level. Based on table 4, it can be seen that most of the respondents have sufficient knowledge level, namely 44 respondents (51.2%) and a small number of respondents have less knowledge level, namely 8 respondents (9.3%).

Table 1. Frequency distribution of respondent characteristics by age at SMA Negeri 3 Mataram

No	Age	Frequency	
		n	%
1	15-17 year	74	86
2	18-21 year	12	14
	Total	86	100

Table 2. Frequency distribution of respondent characteristics by gender at SMA Negeri 3 Mataram

No	Gender	Frequency	
		n	%
1	Male	29	33,7
2	Female	57	66,3
	Total	86	100

Table 3. Frequency distribution of respondent characteristics based on body mass index at SMA Negeri 3

No	Body mass index	Frequency	
		n	%
1	Tin	19	22,1
2	Normal	51	59,3
3	Fat	15	17,4
4	Obesity	1	1,2
	Total	86	100

Table 4. Frequency distribution of respondent characteristics based on the level of knowledge about obesity in adolescents at SMA Negeri 3 Mataram

No	Level knowledge	Frequency	
		n	%
1	Good	34	39,5
2	Enough	44	51,2
3	Nor enough	8	9,3
Total		86	100

Discussion:

1. Age

Based on the results of the study, the majority of respondents were aged 15-17 years, namely 74 respondents (86%). Age has an effect on student knowledge, if the age of the student is higher then the ability to absorb lessons will be better than the age of the younger student. Age is one of the factors that affect a person's knowledge, the higher a person's age, the better his ability to absorb something and knowledge will increase, and a small proportion of respondents who have less knowledge because these students are less informed and less interested in (Istiqamah et al., 2013). Age affects the perception and mindset of a person. As they get older, their catching power and mindset will also develop, so that the knowledge they gain is getting better (Haristia, 2012).

2. Gender

Based on the results of the study, most of the respondents were female, namely 57 people (66.3%). The pattern of distribution of body fat in men and women tends to be different. Women tend to store fat around the hips, thighs, arms, back and abdomen, while men tend to accumulate fat in the abdomen. Fat in certain areas of the body is highly dependent on the number and number of fat cells (Sherwood, 2011). On average, women have more body fat than men. The amount of body fat deposits in women is normally around 25-30% and 18-23% in men. The high prevalence of central obesity in women compared to men is due to differences in the level of physical activity and energy intake in men and women (Widyastuti, 2011). The incidence of obesity is greater in women than men, this is in line with research which states that women are significantly more likely to be overweight or obese than men because women tend to spend more time relaxing on weekends or leisure time (Haristia, 2012).

3. Body Mass Index

Based on the results of the study, most of the respondents' body mass index was 51 people (59.3%). Body mass index affects a person's knowledge about a healthy lifestyle and physical activity, a person's body mass index is influenced by weight, height, age and daily food consumption. Getting a normal body mass

index of course needs to be supported by knowledge about health, one of which is knowledge about obesity. With a good body mass index, in this case a normal body mass index category, will provide many benefits to the body, such as health and ideal body shape. Knowledge about obesity is quite important because knowledge of obesity is one of the supporting factors for a person to be able to control body mass index (Adam, 2009).

High consumption of vegetables, fruit and whole grains had little effect on nutritional status. Women who ate more fruit had a 25% lower risk of obesity compared to women who ate less. Women with more vegetable intake, can reduce the risk of obesity 16% compared with less. Decreased intake of vegetables or fruit is associated with a higher risk of weight gain over 12 years. Increased intake of vegetables and fruit is significantly associated with a lower risk of obesity in women. Consumption of vegetables and fruit is part of a diet strategy in controlling obesity (Badriah, 2014).

4. Knowledge Level

Based on the results of the study showed that the level of knowledge of students about obesity in adolescents was mostly in the sufficient category, namely 44 people (51.2%). Education means the guidance given by someone to the development of others towards certain ideals that determine human beings to act and fill life to achieve safety and happiness. Education is needed to get information, for example things that support health so that it can improve the quality of life.

Obesity is a condition of a person if his weight is more than 30 BBI standards (Ideal Body Weight) or also a condition if a child weighs 120% greater than his body weight should be at his age (Boivin, 2009). Obesity is usually caused because teenagers can not control their food, eat in excess amounts so that their weight exceeds the normal size. In some cases obesity occurs due to binge eating disorder, which is a condition that causes a person to eat large amounts of food continuously and quickly without control. This will eventually lead to depression and trigger obesity (Rudy J. Valentine, MS et al., 2009).

Obesity occurs due to an imbalance of caloric intake and output from the body and a decrease in physical activity (sedentary life style) which causes the

accumulation of fat in a number of body parts (Lemani et al., 2016). Research has found that controlling appetite and satiety is regulated by neural and humoral (neurohumoral) mechanisms that are influenced by genetics, nutrition, environment, and psychological signals. The regulation of energy balance is played by the hypothalamus through 3 physiological processes, namely controlling hunger and satiety, influencing the rate of energy expenditure and regulating hormone secretion. This process in the regulation of energy storage occurs through efferent signals (centered in the hypothalamus) after receiving afferent signals from the periphery (adipose tissue, intestine and muscle tissue). These signals are anabolic (increases hunger and decreases energy expenditure) and can also be catabolic (anorexia, increased energy expenditure) and are divided into 2 categories, namely short signals and long signals. Short signals affect meal portions and meal times, and are associated with gastric distension factors and gastrointestinal peptides, which are played by cholecystokinin (CCK) as stimulators in increasing hunger. The long signal is played by fat-derived hormones leptin and insulin which regulate energy storage and balance (Sherwood, 2012).

Conclusion

1. Based on the results of the study, the majority of students aged 15-17 years were 74 people (86%), some of the students were female, namely 57 people (66.3%), some students with a normal body mass index were 51 people (59, 3%).
2. Based on the results of the study, it showed that most of the students had sufficient knowledge, namely 44 people (51.2%) and a small number of students had less knowledge, namely 8 people (9.3%).

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Moringa Leaf Nanoparticles as an Alternatives to Improve Hemoglobin and Hematocrit Levels in Stunting Toddlers

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Abstract

Background: Stunting is a condition of short toddlers is a discrepancy between height for age which is measured based on the z-score <-2 SD. The highest prevalence of stunting in Central Java was in Magelang Districts by 37.6%. Aims: The objective of this study is to prove that consuming Moringa Oleifera leaf nanoparticles influences the increase in hemoglobin and hematocrit levels in stunting toddlers. Method: This is a quasy experimental study with pretest and posttest with control group design. The number of samples were 40 stunting toddlers who measured based on the z score <-2 SD. Those were divided into treatment groups (Moringa Oleifera leaf nanoparticles dose of 65 mg/day and supplementary feeding) and control groups (supplementary feeding) each group consisted from 20 toddlers. Interventions were given for 21 days. Examination of hemoglobin and hematocrit levels using the Hematology Analyzer method. Results: The hemoglobin level increased significantly from 11,365 g/dL to 12,610 g/dL with a value of p=0.001 in the intervention group. Moreover, hemoglobin level in the control group a slightly increased from 11.455 g/dL to 11.610 g/dL with a value of p=0.648. Hematocrit levels increased significantly (p=0.001) from 35.810% to 43.575% in the intervention group. Hematocrit level also improved slightly in the control group from 31.330% to 31.690%. However, it was not significantly with p=0.455. Conclusion: It is Proved that Moringa Oleifera leaf nanoparticles improves hemoglobin and hematocrit levels in stunting toddlers. The increase hemoglobin and hematocrit levels are greater in the intervention group rather than the control group.

Keyword: Moringa Oleifera leaf nanoparticle, hemoglobin levels, hematocrit levels, stunting

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Introduction

Stunting is a condition of short toddlers (under 5 years old) is a mismatch between TB / U or PB / U as measured by the z-score <-2 SD median standard of child growth according to the World Health Organization (WHO) with a maximum limit of stunting in children of 20%.(Pusat Data dan Informasi Kemenkes RI, 2016) In Indonesia the under-five mortality rate in 2017 was 32/1000 live births.(Kementerian Kesehatan RI, 2018a) Deaths under-five that are as much as 50% are caused by malnutrition problems.(Lima, 2011) The highest prevalence of stunting in Central Java was in Magelang District by 37.6% .(Kementerian Kesehatan Republik Indonesia, 2017)

In toddlers who experience malnutrition one of them due to iron deficiency which is characterized by growth disorders. Then malnutrition is also associated with various pathophysiological changes in the body including the hematological system. As Arun's study said, 95% of malnourished children suffer from anemia with low levels of hemoglobin, hematocrit and erythrocyte numbers but high leukocyte counts.(Arya et al., 2017)

One effort that has been made in dealing with the incidence of stunting is the provision of supplementary feeding. (Kementerian Kesehatan RI, 2018b) The prevalence of toddlers aged 6-59 months who get a PMT in 2018 is 41%.(Waroh, 2019) In Annisa's research explained that as many as 68.5% of parents did not adhere to the supplementary feeding program so that as many as 74.1% of children under five do not experience changes in nutritional status. Some respondents are not compliant in consuming additional food given because toddlers do not like the menu.(Adelasanti, 2018)

Medicinal plants that have been used to improve the health status of malnourished toddlers are moringa leaves which can be eaten as vegetables. Nutrients in it are easily absorbed by the body and do not cause allergies. The main advantage of using Moringa leaves is that local resources are easily available with little or no cost.(Srikanth et al., 2014)(Doria, 2017)

Around the world are producing various products containing Moringa leaves in the form of tablets, capsules, powder or tea.10 Moringa leaves processed in powder form have been widely studied, in recent years the development of nanotechnology products continues to increase. Nanoparticle technology is able to optimize the performance of the content contained in Moringa leaves, especially mineral content.(Syahrial et al., 2019)

The purpose of this study is to prove the administration of Moringa leaf nanoparticles affect the increase in hemoglobin levels and hematocrit levels in stunting toddlers.

Methods

This research is a quasy experimental with pretest and posttest with control group design. This research was conducted at the Publich Health Center of Grabag I and Grabag II, Magelang District, Central Java for 21 days from February to March 2020.

*The sa*mple in this study were 40 stunting toddlers measured based on the z score <-2 SD divided into treatment groups and the control group consisted of 20 toddlers each. In the treatment group Moringa leaf nanoparticles were given daily at a dose of 65 mg/day and supplementary feeding while the control group were only given supplementary feeding for 21 days which was assisted by an enumerator.

Before and after the intervention, hemoglobin and hematocrit levels were examined using the Hematology Analizer method.

This research has obtained ethical clearance eligibility from Dr. Moewardi Number 1.483/ XII/ HREC/ 2019. Prior to the implementation of this researchers, it had obtained approval letter from national and political unity of Magelang District Health Office and the heads of the Publich Health Center of Grabag I and Grabag II.

Result and Discussion

Table 1. Frequency distribution of toddler characteristics based on iron and vitamin C intake

Variable	Group		*P value*
	Treatment	Control	
Iron intake			
Enough	8 (40%)	5 (25%)	0,250*
Less	12 (60%)	15 (75%)	
Vitamin C intake			
Enough	0	2 (10%)	0,244*
Less	20 (100%)	18 (90%)	

** Chi-square Test*

Based on table 1, iron intake per day in stunting toddlers in the treatment group was found as much as 40% had sufficient iron intake while toddlers who had less iron intake were 60%. In the control group of toddlers with enough iron intake as much as 10% while toddlers with less iron intake as much as 90%. Based on homogeneity test there is no difference between iron intake in the treatment group and the control group p = 0,250 or p =>

0.05 meaning homogeneous. Recommendations for iron adequacy for children aged 12-36 months is 8 grams/day and age 37-60 months is 9 grams/day.(Bloch et al., 2013) Iron is a micro nutrient that is important for the body. Iron is needed in the process of hemopobesis, namely the formation of hemoglobin molecules. Lack of iron intake in childhood can cause stunted growth which if it lasts for a long time can lead to stunting.(Sundari & Nuryanto, 2016) This study is in line with research that has been done in Indonesia which says that in stunting infants who have adequate iron intake as much as 1 toddlers and inadequate iron intake as many as 40 toddlers(Losong & Adriani, 2017; Roziko, 2016)

Vitamin C intake per day in stunting toddlers in the treatment group was not obtained by toddlers with adequate vitamin C intake while toddlers who had less vitamin C intake as much as 100%. In the control group of toddlers with enough vitamin C intake as much as 10% while toddlers with less vitamin C intake as much as 90%. Based on the homogeneity test there was no difference between the intake of vitamin C in the treatment group and the control group p = 0.244 meaning equivalent or homogeneous. Suggested nutritional adequacy levels of vitamin C for children aged 12-36 months is 40 grams/day and ages 37-60 months which is 45 grams/day.(Bloch et al., 2013) Consumption of vitamin C contained in fruit has an important role in the process of absorbing iron by increasing four times the absorption of nonheme iron.(Mahameru Pradanti et al., 2015) In the process of absorption of iron in the body the nutrient in the form of vitamin C is able to increase the absorption of food through the stages of formation of the ferroaskorbate complex. Iron absorption will increase by about 20% -25% due to a combination of iron salt with 200 mg of ascorbic acid.(Adriani, 2016) In this study it was found that intake of vitamin C in the treatment and control groups had not yet reached the requirement. In line with previous studies which showed that the average intake of vitamin C in stunting toddlers was 15.96 mg, as much as 10% with adequate vitamin C intake and as many as 90% had less vitamin C intake.(Roziko, 2016) Other studies also showed that the intake of vitamin C from 60 stunting toddlers were 39.9% with good vitamin C intake and 60.1% with less vitamin C intake.(Hendrayati dan Ramlan Asbar, 2018)

Table 2. Analysis of differences in mean hemoglobin levels before and after the intervention in the treatment and control groups

Variable	Group		*P value*
	Treatment (Mean±SD)	Control (Mean±SD)	
Hemoglobin level (g/dL)			
Before intervention	11,365±1,027	11,455±1,008	0,781**
After intervention	12,610±1,403	11,610±1,020	0,014**
Difference	1,245±1,329	0,155±1,496	0,020**
P value	0,001*	0,648*	

**Paired t test, **Independen t test, SD: Standard Deviation*

Table 2 shows that in the treatment group before the intervention the mean hemoglobin level was 11,365 ± 1,027 and after the intervention it was 12,610 ± 1,403 (p = 0.001) meaning that there was a significant increase in the hemoglobin level after the intervention. In the control group the mean hemoglobin levels before the intervention were 11.455 ± 1.008 and after the intervention 11.610 ± 1.020 (p = 0.648) meaning that there were no significant differences in the mean hemoglobin levels after the intervention. The test results used the Independent T Test before the intervention (p = 0.781) which means there was no difference in the mean hemoglobin levels before the intervention between the treatment group and the control group. The mean hemoglobin level after the intervention in the treatment group and the control group (p = 0.014) meant that there were significant differences in the mean hemoglobin level after the intervention between the two groups. Difference in hemoglobin levels in the two groups (p = 0.020), which means that there were significant differences in the difference in hemoglobin levels between the treatment and control groups.

Hemoglobin is a blood component that has a function as a means of transporting oxygen (O2) containing iron in red blood cells and carbon dioxide (CO2).(Guyton A.C and John E. Hall, 2011) In hemoglobin consists of two thirds of iron.15 Iron is a micromineral that plays an important role in the human body because it has a vital function, namely the formation of red blood cells.(Hamzah & Yusuf, 2019) Iron deficiency has been linked to poor cognitive performance in children and will occur in the

long term due to iron deficiency.(Adedapo et al., 2009)

Iron deficiency anemia occurs when the balance of iron intake, iron stores and loss of iron in the body is not enough to fully support the production of erythrocytes. Iron deficiency is the main cause of anemia, the prevalence of anemia in infants reaching 47.4% is included in the high category in developing countries. Toddlers are an age group prone to experiencing iron deficiency. That is because the need for iron in infants increases during growth, low bioavailability and food intake and due to infections and parasites.(Ikatan Dokter Anak Indonesia, 2011)

Anemia in children is a major health problem in communities throughout the world. This is related to serious consequences such as growth disturbance, impaired motor and cognitive development and can increase morbidity and mortality.(Ayoya et al., 2013) WHO estimates that around 800 million people in the world have anemia and around 273.2 million are children aged 5 years. The most common cause of anemia found in infants is due to iron deficiency, apart from iron deficiency anemia is also caused by lack of micronutrient intake such as vitamin C, which is known that vitamin C as an enhancer to prevent the occurrence of iron deposition in the intestine.(Herawati et al., 2018) Factors that are cause anemia, especially in infants, which is due to low intake of protein and zinc.(G. Barragan-Ibanesz, 2016)

The component that plays a role in the formation of hemoglobin is iron. In the moringa leaf nanoparticles (Moringa Oleifera) contain iron as much as 32.375 mg / 100gr and vitamin C 56.549 ppm. Vitamin C in Moringa leaves affects the release and absorption of iron from transferrin to body tissues. In the process of absorption of iron, vitamin C has the function of helping reduce iron into fermentation in the small intestine so that it is easy to absorb. Nonheme iron absorption can increase 4-fold if in the presence of vitamin C.(Osman et al., 2012) The size of Moringa Oleifera Moringa leaf nanoparticles in this study was 614.4 nm. Nanoparticle technology is able to optimize the performance of the content in the leaves of Moringa (Moringa Oleifera) especially the mineral content, so that the mineral content can be absorbed easily by the body compared to minerals without going through the nanoparticle technology process.(Syahrial et al., 2019)

In another study also showed an increase in hemoglobin levels by giving Moringa

Oleifera leaf extract at a dose of 1,400 mg/day for 21 days in women with anemia aged 18-49 years with an average value of 10.58 ± 1.36 to 11.37 ± 1.46 an increase but has not reached normal values.(Suzana et al., 2017) Furthermore, in the Nismawardah study (2019) showed that the administration of Moringa leaf nanoparticles with a dose of 28.57 mg / kgBB / day for 21 days in cancer patients who had received chemotherapy showed an increase in hemoglobin levels, hematocrit levels, the number of erythrocytes and leukocytes count after the intervention in this study showed an increase in hemoglobin levels reached normal values.(Nismawardah, 2019).

Table 3. Analysis of differences in mean hematocrit levels before and after the intervention in the treatment and control groups

Variable	Group		*p value*
	Treatment (Mean±SD)	Control (Mean±SD)	
Hematocrit level (%)			
Before intervention	35,810±2,902	31,330±3,772	0,001**
After intervention	43,575±6,154	31,690±3,477	0,001**
Difference	7,765±6,654	0,360±2,109	0,001**
P value	0,001*	0,455*	

**Paired T Test, **Mann Whitney, SD: Standard Deviation*

Table 3 shows that before intervention in the treatment group the mean hematocrit level was 35.810 ± 2.902 and after the intervention it was 43.575 ± 6.154 (p = 0.001) meaning that there was an increase in the hematocrit level after administration of the intervention. In the control group the mean hematocrit levels before intervention were 31.330 ± 3.772 while the mean hematocrit levels after intervention were 31.690 ± 3.477 (p = 0.455) meaning that there were no significant differences in the mean hematocrit levels after the intervention. The test results used Mann Whitney before the intervention in the two groups (p = 0.001) which means there were differences in the mean hematocrit levels before the intervention. Mean hematocrit levels after intervention (p = 0.001) means that there are significant mean differences in hematocrit levels after the intervention between the treatment and control groups. Difference in hematocrit levels in the two groups (p = 0.001), which means that there were significant differences in the mean difference in hematocrit levels between the treatment and control groups.

Hematocrit levels will increase (hemoconcentration) due to an increase in the

number of erythrocytes or because of a decrease in blood plasma volume. Hematocrit levels will decrease (hemodilution) due to a decrease in the number of erythrocytes or due to an increase in blood plasma levels for example in cases of anemia.(Meilanie, 2019)

Hematocrit is the ratio between the volume of red blood cells (erythrocytes) with the total volume of blood. In women the hematocrit range from 35% -47% and men 41% -54%. Deviations from this range can be used to help diagnose certain conditions related to health status such as dehydration and anemia.(Berry et al., 2016) Hematocrit levels are influenced by the formation of red blood cells in which the substance that plays a role is iron.(Almatsier, 2010)

In a related study showed that an increase in hematocrit levels by giving Moringa Oleifer leaf powder at a dose of 0.038g / kg Moringa Oleifera is 41.39 ± 1.59 with a significance level of p = 0.05.(Adegbite et al., 2016) Other studies that are in line with this study are there was a significant difference in hematocrit levels before the intervention namely in the intervention group 31.5667 ± 4.93452 whereas after administration of 250x2 Moringa Oleifera leaf capsules for 14 days in the intervention group 38.3867 ± 1.14759.(Estiyani et al., 2017)

Conclusion

Moringa leaf one of the plants that can be used as an alternative to increase hemoglobin levels and hematocrit levels in stunting toddlers is added by using nanoparticle technology that is able to accelerate the absorption of the mineral content of Moringa leaves in the body.

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Potential Red Leaves Extract on Improving The Effectiveness of Antibiotic in Postpartum (Study Experiment of Perineum Wound Healing Process)

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Abstract

Background: Puerperal infection is caused by the entry of bacteria through uterine or perineal wounds. These bacteria can trigger proinflammatory cytokines. Excessive proinflammatory response results in tissue damage, septic shock to death. Among the non-pharmacological methods are extracts of red betel leaves which have phytochemical screening of flavonoids and tannins as antibacterial and antiseptic. **Purposes**: Knowing the potential of simplicia extract of red betel leaf on increasing the effectiveness of antibiotic in postpartum (study experiment of the process of healing of perineal wounds). **Method**: Quasi-experimental post-test only with control group design. Subjects were postpartum mothers with episiotomy perineal wounds that were sewn at Ummu Hani Purbalingga Mothers and Child Hospital using purposive sampling with a total of 38 respondents. The treatment group was given amoxicillin and red betel leaf simplicia extract, the control group was given amoxicillin and perineum wound care standard service. Provision of intervention carried out for 7 days, the measurement instrument for perineal wound healing is the REEDA score. Data analysis using independent t-test. **Result:** An independent test between the two groups found a mean difference in perineal wound healing p-value 0.0001. On intervention group the mean of perineal wound healing in day 5 and control group day 7. **Conclusion:** There is potential for simplicia red betel leaf extract to increase the effectiveness of antibiotic in postpartum.

Keywords: Red betel leaf extract; Postpartum infections; Perineal injury.

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Introduction

The puerperium is a period that is still vulnerable to the life of postpartum (Berat et al., 2016). The number of maternal deaths is caused by complications during pregnancy, childbirth and the puerperium. According to the World Health Organization there are 210 million pregnant women, and 130 million births around the world, of which an estimated 558,000 women die each year due to complications of pregnancy and childbirth.[2] In Indonesia, maternal causes of death include 26.9% bleeding, eclampsia delivery 23%, puerperium infection 11%(RI Ministry of Health, 2018).

Cases of maternal deaths in Central Java Province in 2017 were 475 cases or 88.05 per 100,000 live births. In 2017, 69.5% of maternal deaths in Central Java occurred during the puerperium, 24.33% in pregnancy and 18.06% in labor. The postpartum mortality rate continues to increase from 2016 to 71.87%. Data in Central Java maternal mortality due to the incidence of puerperal infections by 4.04%.(GOVT, 2017) In Purbalingga there were 3 cases during 2019. Besides causing death, puerperal infection also resulted in morbidity and problems for mothers including infertility and pelvic

inflammatory disease Kemenkes RI, 2014 Perineal injury is the biggest contributor to the causes of morbidity with complications in the form of puerperal infection (4.5%) (Manuaba, 2011). There are 2.7 million cases of perineal injury in maternal women. This figure is estimated to reach 6.3 million in 2020 (Health, 2014).

In cases of perineal wounds with episiotomy experiencing morbidity based on redness of 6.6%, edema 26.2%, ecchymosis 8.2%, discharge 11% and approximation 34.3% (Health, 2014). Scoring for self-evaluation of wound healing is with REEDA tools from Davidson 1974. This tool is to study redness, edema, ecchymosis (purplish patch of blood flow), discharge and approximation (closeness of skin edge). REEDA assesses five components of the healing process and perineal trauma. Each factor is given a score between 0 to 3 which represents the absence of signs until the signs of the worst level. The total scale score ranges from 0 to 15, with higher scores indicating worse wound healing.

Heal wounds can be marked with a REEDA score = 0 (Sujiyanti, 2010).

The infection itself occurs due to the entry of bacteria through uterine or birth canal injuries.(Pakasi & Kartikawati, 2013) The bacteria that cause puerperal infections release some toxins, namely Peptidoglycan (PepG) and lipoteichoic acid (LTA) which make the inflammatory response begin, then respond by macrophages by releasing proinflammatory cytokines such as Tumor Necrosis Factor-Alpha (TNF-α), Interleukin 6, and then responding by macrophages by removing proinflammatory cytokines such as Tumor Necrosis Factor-Alpha (TNF-α), Interleukin 6, and 1-Beta (IL-1β) (Barrientos S, Stojadinovic O, 2015).

These bacteria will attack the placental implantation or the presence of perineal injury due to childbirth originating from normal cervical bacteria inhabitants and the birth canal or from the outside. Bacteria in the puerperium infection are gram-positive Streptococcus Agalactiae. Streptococcus Agalactiae which is a major cause of premature birth, premature rupture of membranes, infections, pneumonia, meningitis and newborn sepsis (Juliantina, F., Citra, DA, Nirwani, B., Nurmasitoh, T., Bowo, 2014). Beside being able to result in infection, the presence of perineal wounds in the mother also gives pain and discomfort during the postpartum period the mother goes through (Eghdampour F, Jahdie F, Kheyrkhah M, 2013).

One of the pharmacological drugs of antibiotics used as an effort to heal wounds and prevent infection of the puerperium is amoxicillin, which is too often used and not in accordance with the provisions can cause the emergence of resistance in bacteria. This is because synthetic antibiotics are no longer effective, even giving side effects while the side effects of herbal medicines are less compared to conventional medicines (pharmacological drugs) (Friambodo B, Purnomo Y, 2017). Therefore the addition of the use of herbal or non-pharmacological drugs can increase the effectiveness of the drug by achieving the target of recovery in the inflammatory process more quickly because of the synergistic effect obtained from the pharmacological drug amoxicillin (Nurdjanah R, Besar B, Postharvest P, 2019).

Indonesia is one of the centers of biodiversity. Various plants contain chemicals that have the potential as medicinal ingredients (Nurdjanah R, Besar B, Postharvest P, 2019). Herbal medicine is one of good treatment because it is believed to be an easily obtainable drug, making it simple, inexpensive and harmless because it is made from natural ingredients and also supported by the Ministry of Health's regulation of herbal medicine in 2010 (Nurdjanah R, Besar B, Postharvest P, 2019).

Red betel leaf (Piper crocatum Ruiz & Pav.) Can be used as a non-pharmacological therapy in overcoming inflammation and preventing infection. This is due to phytochemical screening, namely essential oils, alkoloid, saponin, tannin and flavonoids. The content of flavonoids and tannins as phenols and polyphenols has the highest activity as an antimicrobial that is able to fight gram-positive bacteria, namely Streptococcus Agalactiae and Candida Albicans by disrupting the integrity of bacterial cell membranes by changing the properties of bacterial cell proteins so that bacterial cell wall permeability increases and bacteria become lysis (Inggit PA, 2011). Flavonoids also function as antifungal, antioxidant, anti inflammatory and natural antibiotics (Alfarabi M, Bintang M, Suryani, 2010). The presence of cavinol compounds which is a phenol group also contributes to the role as a power to kill bacteria and five times stronger than ordinary phenol groups (Anggraini V, 2017).

To get the best chemical content from an ingredient, it must go through an extraction process that aims to remove certain components from the main ingredient with the help of a solvent. Polar and semi-polar compounds are found maximally in ethanol solvents*hydrogen* 70%, namely flavonoid compounds and tannins (Nurdjanah R, Besar B, Postharvest P, 2019). The product form of the sympetic extract in this study was packaged in a shell capsule from beef gelatin and using 10% sagu starch maltodectrin coating because the water content in starch was low compared to vegetable starch so that the stability of the material was better and not easily damaged when stored. The encapsulation process was chosen with the aim of the respondents getting easier, regular and efficient in consuming (Adisti, 2016). Making extracts was carried out according to the SOP at the Soegijapranata Catholic University of Semarang Food Engineering Laboratory. The dosage of simplicia extract of red betel leaf in this study was by confession of the absolute dose of rat 50 mg/ kg (Anggraini V, 2017).

BB rat dose 200 gr:

20/1000 x 50 mg = 1/5 x 50 mg = 10 mg.

Human dose BB 70 kg:

10 mg x 56 = 560 mg

Dosage for BB Women 50 kg:

50/70 x 560 mg = 400 mg / day.

D.R. Laurence and A.L. Bacharach, Pharmacometrics.

An acute toxicity test showed practically non-toxic red betel leaf extract (LD50> 5000mg) based on OICD (Alfarabi M, Bintang M, Suryani, 2010). Then the recommended doctor's dose is 400mg/capsule according to the needs of humans in taking 2x/day.

Method

This type of research is a quasy experiment post-test only with control group design. The sampling technique is to use a purposive sampling technique with a study sample of normal postpartum mothers who suffered perineal injury by episiotomy and suturing and fulfilling the inclusion and exclusion criteria in January-March, amounting to 38 mothers in Ummu Hani Purbalingga Mothers and Child Hospital Regency. The interventions in the two groups were the same for 7 days, namely the assessment of the healing process of the perineal wound using the REEDA score assessment sheet which was conducted every morning on day 1 (as a pretest) to day 7 (as a posttest) by the enumerator and then recorded on the observation sheet and also giving simplicia red betel leaf extract capsules together with the mother taking amoxicillin for the treatment group and taking amoxicillin only for the control group. The results of the intervention are recorded on the data sheet. Then do the data analysis using the independent t test. This research has obtained etichal clereance from the bioethics commission of the Faculty of Medicine, Sultan Agung University of Semarang. Then do the data analysis using the independent t test. This research has obtained etichal clereance from the bioethics commission of the Faculty of Medicine, Sultan Agung University of Semarang. Then do the data analysis using the independent t test. This research has obtained etichal clereance from the bioethics commission of the Faculty of Medicine, Sultan Agung University of Semarang.

Result and Discussion

1. Characteristics of Respondents Based on Age, Parity, Nutrition and HB Levels.

The majority of postpartum mothers in the treatment group were at the age of 21-30 years with 14 respondents (73.7%) with higher education as many as 11 respondents (57.9%) parity was mostly multipara with 14 respondents (73.7%) Maternal nutritional status is indicated by the body mass index of all normal respondents is 19 respondents (100%) and HB levels also indicate respondents in normal condition as many as 19 respondents (100%).

In the control group it is known that the majority of postpartum mothers are aged 21-30 years, namely 17 respondents (58.9%) with higher education as many as 10 respondents (52.6%) parity is mostly multipara, 15 respondents (78.9%) the nutritional status of mothers which is indicated by the body mass index of all normal respondents is 19 respondents (100%) and HB levels also indicate respondents are in normal condition as many as 19 respondents (100%). From all

characteristic data after homogeneity test shows the p value> 0.05, then the characteristic data can be said to have the same data variant so it does not affect the research results.

2. Analysis of the Perineum Wound Healing Process Control and Treatment Group.

   Using the independent t test test analysis in table 1 shows the p value redness of 0.0001 edema 0.010 ecchymosis 0.001 discharge 0.001 and approximation 0.0001 (<0.05) in both groups. This shows that there is an effect of red betel leaf simplicia extract to increase the effectiveness of antibiotic use in postpartum mothers with perineal injury on REEDA score and for test results on perineal wound healing using REEDA score = 0 (day of wound healing) showed p value 0,0001 (< 0.05).

3. Average Acceleration of Perineal Wound Healing Between Groups.

   In the treatment group the average redness was 3.79 edema 3.79 ecchymosis 2.68 discharge 2.79 and approximation 3.74 while in the control group the average redness was 5.37 edema 5.21 ecchymosis 4.21 discharge 4.42 and approximation 5,47. From these results it can be seen that the average value of each REEDA score in the treatment group is smaller than the control group which can be interpreted as the severity of the wound condition during the study group treatment is smaller than the control group. This is consistent with the results of the test value on perineal wound healing using REEDA score = 0 (wound healing day) showing p value 0,0001 (<0.05).

Table 1. Distribusi Frekuensi Karakteristik Responden

Respondent Characteristics	Perlakuan		Kontrol		p *value*
	f	%	f	%	
Age					
18-20 years old	4	21,5	2	10,5	
21-30 years old	15	78,9	17	89,5	0,390
31-35 years old	0	0	0	0	
Education levels ∑ (%)					
Elementary school	0	0	0	0	
Middle (junior/senior high school)	8	42,1	10	52,6	0,571
High (D3/S1)	11	57,9	9	47,4	
Parity ∑ (%)					
Primipara	5	26,3	4	21,5	0,306
Multipara	14	73,7	15	78,9	
Nutritional					
IMT : Kurus <18,5	0	0	0	0	
Normal 18,5-24,9	19	100	19	100	0,662
Overweight 25-29,9	0	0	0	0	
Obesitas 30-39,9	0	0	0	0	
HB levels					
Normal 11-15 g/dL	19	100	19	100	0,920
Anemia <9 g/dL	0	0	0	0	

*p *value* = uji homogenitas menggunakan Uji Levene

Table 2. Potential of Simplisia Red Betel Leaf Extract Against Increase Effectiveness of Antibiotic Use in Postpartum Mothers.

Dependent Variable	Mean ± SD		p value *
	Treatment	Control	
Redness	3.79 ± 0.976	5.37 ± 1,499	0.0001
Edema	3.79 ± 0.976	5.21 ± 1.357	0.010
Ecchymosis	2.68 ± 1.057	4.21 ± 1,357	0.001
Discharge	2.79 ± 0.976	4.42 ± 1,610	0.001
Approximation	3.74 ± 0.991	5.47 ± 1.389	0.0001
Perineum Wound Healing Day (REEDA score = 0)	4.58 ± 0.838	6.58 ± 0.838	0.0001

*p value independent test t test

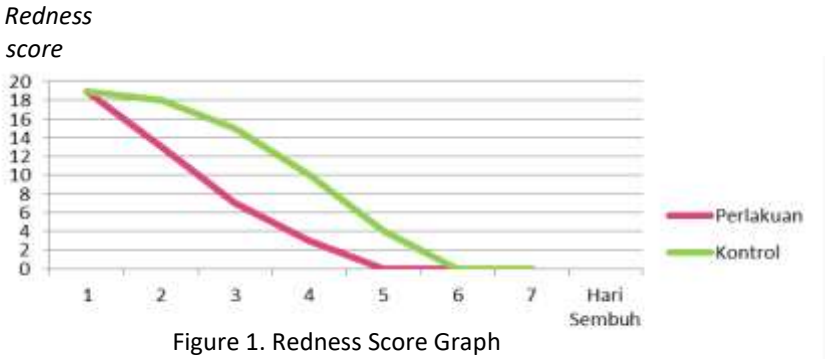

Figure 1. Redness Score Graph

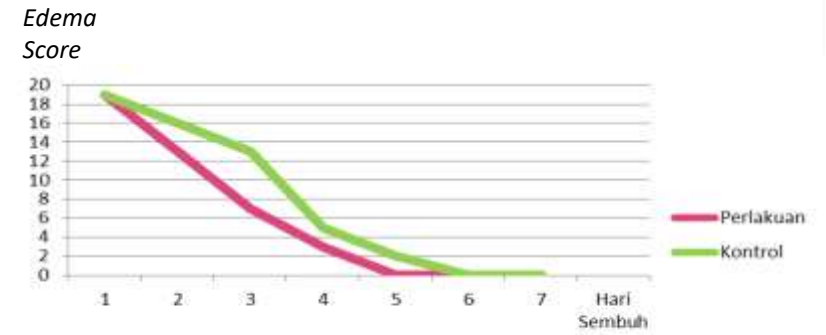

Figure 2 Graph Edema Score

Ecchymosis score

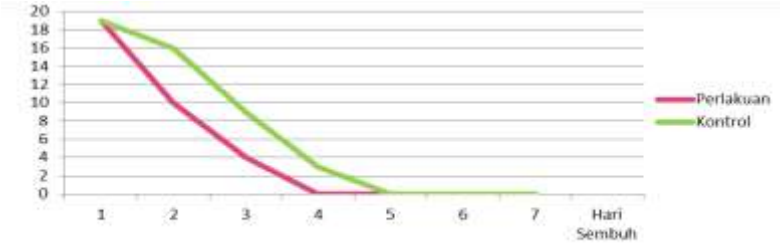

Figure 3 Ecchymosis Score graph

Discharge score

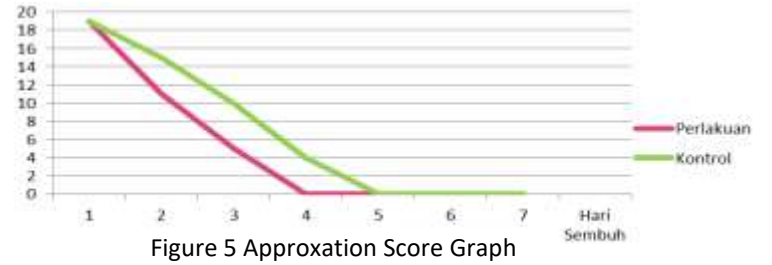

Figure 5 Approxation Score Graph

Approximation Score

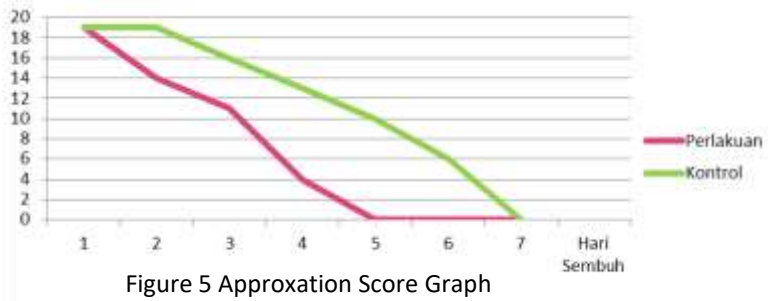

Figure 5 Approxation Score Graph

Graph of Accelerated Healing of Perineum Wounds REEDA score = 0

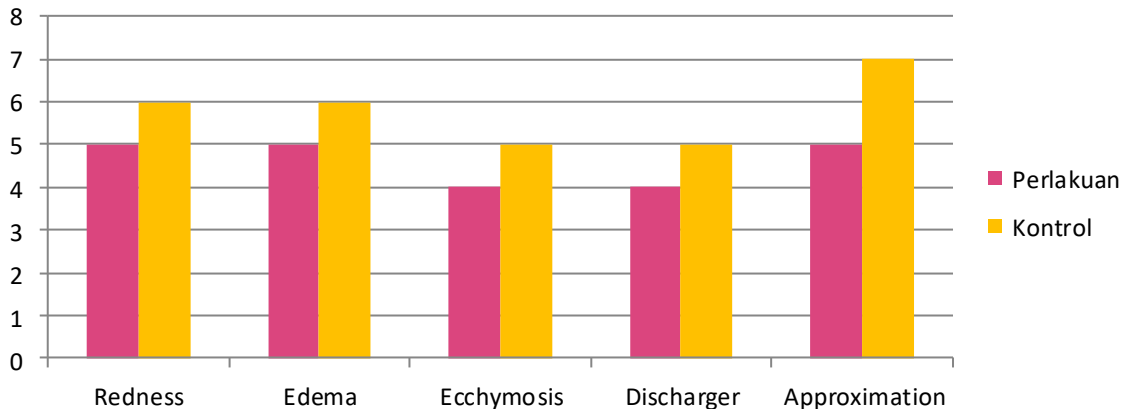

Figure 6 Graph of Accelerated Healing of Perineum Wounds REEDA score = 0

The results of this study are in line with Karimah 2019 research entitled the period of perineal wound healing in postpartum mothers between the decoction of water treatments of binahong leaves with red betel leaves with the type of quasy experiment post test only without group control design. Sample 32 post partum

mothers. The results of the mann whitney test showed a p value of 0.0001 (p value <0.05) so that there was a difference in the duration of perineal wound healing between the treatment of binahong leaf cooking water and the red betel leaf cooking water. From the results of this study, it is expected that midwives advise postpartum mothers to treat perineal wounds using boiled red betel leaf water (Karimah, N, Khafidhoh N, 2019).

Fitriyani 2011 research on the anti-inflammatory test of methanol extract of red betel leaf (piper crocatum ruiz & pav) in white rats namely red betel leaf has been made in a more effective form, namely extract and has been proven to cure inflammation in the wounds of test animals with the result that inflammation as natural response that occurs in tissue damage has been using NSAID (non-steroidal anti-inflammatory) treatment which specifically has a long history and caused a lot of controversy and side effects. One of the medicinal plants used empirically for traditional medicine is red betel. This plant has the potential to be developed into a drug for anti-inflammatory because it contains flavonoids, saponins, tannins, and alkaloids. Using caragenin induction method in mice. From the results of the study it was found that the extract with a dose of 50mg/kg weight showed an effective anti-inflammatory effect. These results indicate that the red betel extract provides a promising anti-inflammatory effect (Fitriyani A, Winarti L, Muslichah S, 2011).

Supported by the results of the 2016 Cahyanti study entitled the utilization of red betel leaf decoction (piper crocatum) against the inhibition of the bacteria Streptococcus agalactiae and Streptococcus uberis. Streptococcus agalactiae is a gram-positive bacteria in the vagina. The completely randomized design (RAL) experimental research method consisted of 4 treatments and 5 replications of the well diffusion method. The results showed that there was no significant difference in each concentration of red betel leaf with iodips used as a comparison in inhibiting the bacteria Streptococcus agalactiae and Streptococcus uberis, meaning that the red betel leaf decoction in all treatments had the same ability as iodips in inhibiting the bacteria Streptococcus agalactiae and Streptococcus uberis (Cahyanti, 2016).

Furthermore, the results of Maslikah 2018 entitled red betel leaf extract as an anti-inflammatory agent in rheumatoid arthritis mice. Extracts of red betel leaf on healing inflammation using TNF Alfa as an indicator shows that using 24 test animals of RA mice. Mice were then divided into 6 groups namely normal, RA (K-), RA + aspirin (K +), RA + EDSM dose of 100 mg / kgBB (P1), 200 mg / kgBB (P2), and 400 mg / kgBB (P3) . The results showed that the length of intestinal villi of mice treated with red selh leaf extract were close to normal. Based on the research results, red betel leaf extract can be used as a candidate drug for inflammation with an effective dose of 400 mg / kg (Maslikah Hospital., 2018).

Thus research using red betel leaf extract is proven to be one of the strong alternatives for the treatment of inflammation and infection prevention. This is due to the superiority of the flavonoid and tannin content in the red betel extract which in this study was tested using the UV-VIS spectrophotometer analysis method with the results of nutritional content, namely flavonoids consisting of flavones and flavonols with test results of 2535, 880 mg / 100g and un-nutritional content, namely tannins with a yield of 908, 645mg / 100g. Making extracts and determining dosages are in accordance with the toxicity test and the conversion results of test animals to humans. This research has a limitation that is uncontrolled intake of nutrition / food consumed by mothers during implementation interventions that allow influence on the process of wound healing and absence *matching* between group.

Conclusion

The application of red betel leaf simplicia extract to increase the effectiveness of antibiotic use in postpartum mothers with perineal wounds performed by episiotomy and stitched for 1-7 days 2x1 per day at a dose of 400 mg / capsule has an effect on:

1. The acceleration of perineal wound healing in the treatment group was more ptimal on day 5 compared to the control group on day 7.
2. Increasing the effectiveness of antibiotic use in accelerating the healing of perineal wounds.

The next researcher can explore that is by adding a recall menu of mothers food during the intervention, randomizing sampling and matching between groups and also adding the dependent variable.

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Pregnancy Young Age with Anemia, Chronic Energy Lack, and Body Index in Mataram City

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Abstract

***Background**: The prevalence of early marriages in West Nusa Tenggara Province in 2010 was 44%, data in West Nusa Tenggara reached 31.32%, ranking 15th out of 34 provinces (BPS, 2017). Based on the results of 2018, basic health research found three dominant factors that became the focus of BMI, SEZ and anaemia. PMT in 2018 is 25.2% of all pregnant women. The proportion of anaemia of pregnant women in Indonesia increased from 2013 by 37.1% to 48.9% in 2018, the age group of pregnant women the majority of anaemia in pregnant women at the age of 15-24 years was 84.6%, the highest proportion of energy chronic deficiency risk in the age group of 15-19 years which is 33.88%, so based on these data the researcher felt the need to do this research. **Objective**: This study aims to determine the effect of adolescent pregnancy with the incidence of anaemia, SEZ, and BMI in the city of Mataram. **Method**: This study used an observational design with a cross-sectional design and a sample size of 69 with pregnant women in the city of Mataram, using consecutive sampling techniques. The statistical test analysis used was bivariate with Chi-Square and multivariate using logistic regression test with a significance level of 5% and 95% confidence interval. **Results**: The study found no significant relationship between adolescent pregnancy with the incidence of CED and BMI, found a substantial correlation between teenage pregnancy with the prevalence of anaemia. Multivariate analysis results found a significant association between adolescent pregnancy and the prevalence of anaemia by controlling parity with a value (OR = 4.27; 95% CI: 1,209-15.13).*

Keyword: ***adolescent pregnancy, anaemia, chronic energy deficiency, BMI.***

Introduction

Pregnancy at a young age is one of the most common health problems in developing countries. The risk of death in early pregnancy is 2-4 times higher than in healthy reproductive age pregnancies. Early marriage is still a global problem that causes the incidence of early pregnancy to occur in developing countries, more than 30% of girls are married before they are 18 years old and about 14% are married before the age of 15, and around 16 million teenage girls give birth every year (WHO, 2015).

The percentage of ever-married women aged <18 years according to above

10% is evenly distributed in all provinces of Indonesia, while the distribution of child marriage rates above 25% is in 23 provinces in Indonesia. This means that 67% of the areas in Indonesia are in emergency of child marriage, in NTB Province in 2010 as many as 44 young marriages reached 31.32%, ranked 15th out of 34 provinces in Indonesia. Some of the reasons that underlie this occurrence include the demand for young marriage and free sexual relations, access to education and work, gender inequality, sexual violence and the influence of the mass media and a free lifestyle. The increasing number of child marriages aged <18 years has the opportunity to increase the prevalence of young pregnant women. Based on Riskesdas data in 2013, in Indonesia there were pregnancies at a very young age, namely less than 15 years by 0.02% and at the age of 15-19 years at 1.97%.

Pregnant at a young age is influenced by many factors, chronic energy deficiency is a factor that can affect the health of pregnant women, The results (Riskesdas, 2018), obtained the proportion of chronic energy deficiency in 2007 to 2018 in pregnant women aged 15-19 years, namely 31% in 2007, 38.5% in 2013, then in 2018 decreased to 33.5%, seen from the prevalence of the proportion of chronic energy at the age of 15-19 years has the highest number of all age groups of pregnant women. Judging from the low BMI factor, the government's efforts to overcome this are by giving PMT to pregnant women, pregnant women who have received PMT assistance in 2018 are 25.2% of all pregnant women and the proportion of pregnant women gets blood-added tablets as an effort by the government to overcome anemia in pregnant women, with a total proportion of 73.2% having received blood-added tablets.

The proportion of anemia in pregnant women in Indonesia increased from 37.1% in 2013 to 48.9% in 2018, the age group of pregnant women with the majority of anemia in pregnant women aged 15-24 years as much as 84.6% is still quite high. The proportion of risk of chronic lack of energy in pregnant women in NTB in 2018, found 3 age groups at risk of chronic lack of energy, namely the age group 15-19 years, namely 33.88%, age 20-24 years as much as 26.86%, age 25-24 years. 29 years 23.59% (Riskesdas, 2018). The government is trying to overcome the occurrence of pregnancy at a young age, one of which is holding programs such as the

youth posyandu at the Tanjung Karang Mataram Health Center, holding youth classes through the PIK-R program. As (Fall et al., 2015) found that children born to young mothers in LMICs were disadvantaged at birth, childhood and school nutrition. Efforts to prevent the birth of young mothers should be strengthened. After adjustment, children of older mothers had an advantage in nutritional status at school.

The prevalence of pregnant women in Mataram City was obtained from 11 health centers, 3 health centers had the highest number of pregnant women, namely Cakranegara Health Center as many as 1,329 pregnant women, Karang Pule Health Center 1,296 pregnant women and Tanjung Karang Health Center as many as 1,249 pregnant women (Mataram, 2018). The problems of young pregnant women can worsen the condition of their pregnancy and are accompanied by many influencing factors, so researchers feel the need to conduct research on young pregnancy with the incidence of Body Mass Index, Chronic Energy Deficiency, Anemia in the Karang Pule Health Center Work Area.

Method

This study used an observational research type with a cross sectional design. The research sample is pregnant women who live in the working area of Karang Pule, Karang Taliwang, and Pejeruk Health Centers. Sampling technique with consecutive sampling. The statistical test analysis used is the statistical test analysis used is bivariate with Chi Square and multivariate using logistic regression test with a significance level of 5% and 95% confid.

The data collected includes young pregnancies with age distribution < 21 years and 21 years based on (BKKBN, 2017), mother's education, family income according to the Decree of the Governor of West Nusa Tenggara (NTB) number 561-815 of 2018 concerning the Mataram City Minimum Wage in 2019 amounting to Rp2,013,165,- based on the Decree of the Governor of West Nusa Tenggara Number 561 – 850 of 2019. Maternal parity, incidence of anemia, chronic energy deficiency, body mass index of pregnant women.

Result and Discussion

This research was conducted on 69 respondents in the group of pregnant women.

The results of the study based on the frequency distribution of the research respondents' characteristics are presented in the following table:

Table 1. Frequency Distribution of Respondents Characteristics

Characteristics	F	%
Pregnant at a young age		
Young age	13	18,8
Mature age	56	81,2
Level of education		
Low	25	36,2
Tall	44	63,8
Work		
Doesn't work	42	60,9
Working	27	39,1
Family income		
Low	35	50,7
Tall	34	49,3
parity		
at risk	35	50,7
No risk	34	49,3
Body mass index		
at risk	0	0
No risk	69	100
Chronic energy deficiency		
at risk	9	13
No risk	60	87
Anemia		
at risk	19	27,5
No risk	50	72,5

Based on table 1, it is known that at the age of the majority of respondents in adulthood, namely 56 respondents (81%) and young age as many as 13 respondents (18%), as well as the highest level of education of mothers in higher education, namely 44 respondents (68.8%). mothers with low education 25 respondents (36.2%). The majority of mothers do not work as many as 42 respondents (60.9%) and working mothers as many as 27 respondents (39.1%). Then for parity characteristics, the number of parity is not much different, namely risk parity as many as

Table 2. Frequency Distribution Based on The Incidence of Early Pregnancy

Variable	Chronic Energy Deficiency				Anemia				BMI	
	Risk		No Risk		Risk		No Risk		No Risk	
	f	%	f	%	f	%	F	%	f	%
Pregnant at a young age										
< 21 tahun	2	2,9	11	15,9	7	10,1	6	8,7	13	18.8
≥ 21 tahun	7	10,1	49	71,0	12	17,4	44	63,8	56	81.2
Level of education										
Low	2	2,9	23	33,3	6	8,7	19	27,5	25	36,2
Tall	7	10,1	37	53,6	13	18,8	31	44,9	44	63,8
Work										
Doesn't work	6	8,7	36	52,2	12	17,4	30	43,5	42	60,9
Working	3	4,3	24	34,8	7	10,1	20	29,0	27	39,1
Family income										
Low	6	8,7	29	42	11	15,9	24	34,8	35	50,7
Tall	3	4,3	31	44,9	8	11,6	26	37,7	34	49,3
Parity										
at risk	5	7,2	30	43,5	12	17,4	23	33,3	35	50,7
No risk	4	44,4	30	43,5	7	10,1	27	39,1	34	49,3

Based on table 4, the highest number of young pregnant at the age of 21 years is 49 respondents (71%) in the non-risk group in cases of chronic energy deficiency, the lowest number in the chronic energy deficiency group is at risk of 2 respondents (2.9%). Then the highest number was found in the non-risk anemia group as many as 44 respondents (63.8%) and the lowest in the same group as many as 6 respondents (8.7%). In the case of body mass index, the overall respondents had a body mass index that was not at risk with the highest number of 56 respondents (81.2%) in the age group during pregnancy 21 years.

The highest level of higher education is 37 respondents (53.6%) in the incidence of chronic energy deficiency is not at risk and the lowest incidence is at low education level in chronic low energy deficiency as many as 2 respondents (2.9%). Then the highest incidence of anemia in the non-risk group was 31 respondents (44.9%) and the lowest incidence of anemia at risk was 6 respondents (8.7%) in the low education group. In the case of body mass index, all respondents have a body mass index that is not at risk as many as 44 respondents (63.8%) in the higher education group.

The occupational status of the most respondents did not work as many as 36 respondents (52.2%) in the chronic energy deficiency group was not at risk, then the work status in the group with the highest incidence of anemia in the incidence of anemia was not at risk as many as 30 respondents (43.5%) with the status of not working and the lowest incidence of anemia was at risk of 7 respondents (10.1%)

in the working mother group. In the case of body mass index, the total respondents have a body mass index that is not at risk as many as 42 respondents (60.9%) in the group of respondents who do not work.

Family income in this study was mostly high income as many as 31 respondents (45%) in the chronic energy deficiency group who were not at risk while high family income as many as 3 respondents (4.3%) in the chronic energy deficiency group at risk, then the majority family income was high in the non-risk anemia group as many as 26 respondents (37.7%) and the lowest in the same income group as many as 8 respondents (11.6%) in the at-risk anemia group. All respondents in this study had a body mass index that was not at risk with the highest incidence of 35 respondents (50.7%) in low family incomes.

In this study, the majority of respondents had the same parity at risk or as not at risk in both groups, namely 30 respondents (43.5%) in the chronic energy deficiency group, not at risk and the lowest occurred in the non-risk parity group, as many as 4 respondents (44.4%) in the energy deficient group. chronic risk. Then parity not at risk had the highest incidence in the non-risk group of anemia, namely 27 respondents (39.1%) and the lowest in parity not at risk as many as 7 respondents (10.1%) in the anemia group at risk. All respondents in this study had a body mass index that was not at risk with the highest incidence of 35 respondents (50.7%) at risk parity.

Based on table 3, there is no significant relationship between variables pregnant at a young age, education level, occupation, family income and parity with the incidence of chronic energy deficiency, this is due to the p value 0.05, which is 0.781

Table 3. Cross tabulation of young pregnant women with the incidence of Chronic Energy Deficiency

Variable	Chronic Energy Deficiency		*P*	OR	CI 95%
	Risk	Not Risk			
	n	n			
Pregnant at a young age					
< 21 tahun	2	11	0.781	1.27	0.23-6.98
≥ 21 tahun	7	49			
Level of education					
Low	2	23	0.348	0.46	0.08-2.4
Tall	7	37			
Work					
Doesn't work	6	36	0,702	1.33	0.3-5.85
Working	3	24			
Family income					
Low	6	29	0,305	2.13	0.48-9.35
Tall	3	31			
Parity					
at risk	5	30	0.756	1.25	0.306-5.11
No risk	4	30			

Table 4. Cross tabulation of young pregnant women with anemia incidence

Variable	Anemia		*P*	OR	CI 95%
	Risk	Not Risk			
	n	n			
Pregnant at a young age					
< 21 tahun	7	6	0.018	4.20	1.2-15.13
≥ 21 tahun	12	44			
Level of education					
Low	6	19	0.62	0.75	0.24-2.31
Tall	13	31			
Work					
Doesn't work	12	30	0,81	1.14	0.38-3.4
Working	7	20			
Family income					
Low	11	24	0.463	1.49	0.513-4.32
Tall	8	26			
Parity					
at risk	12	23	0.203	2.20	0.68-5.95
No risk	7	27			

Table 5. Multivariate analysis between independent variables, dependent variables and external variables with the incidence of anemia.

Variable	Model 1 OR (95%CI)	Model 2 OR (95%CI)
Pregnant at a young age		
- at risk	4.278 (1.209-15.13)	
- No risk		
Parity		
- at risk		2.01 (068-5.95)
- No risk		
N	69	69
R^2	0.103	0.034

Based on the results of the above analysis, model 1 was chosen as a good model to explain the relationship between early pregnancy and the incidence of anemia because it has the largest R2 value compared to other models, which is 0.10 which can be concluded that young pregnancy contributes to the incidence of anemia by 10%. Pregnant age at risk of 4.2 times have contributed to the occurrence of anemia with (95% CI: 1.2-15.13).

Discussion of Chronic Energy Deficiency

Based on table 3, the highest number of young pregnant at the age of 21 years is 49 respondents (71%) in the non-risk group in cases of chronic energy deficiency, the lowest number in the chronic energy deficiency group is at risk of 2 respondents (2.9%). The results of the analysis showed a non-significant relationship between early pregnancy and the incidence of chronic energy deficiency with a p value of 0.78, but when viewed from the OR value of 1.27, which means that young pregnancies are at risk of 1.2 times for chronic energy deficiency. In line with the research conducted (Dharma, 2019) obtained a p value of 0.928, which means that there is no significant relationship between the age of pregnant women and the incidence of chronic energy deficiency. Pregnancy at the age of less than 20 years is biologically not optimal, emotions tend to be still unstable, mentally immature so that it is easy to experience shocks which result in lack of attention to meeting nutritional needs during pregnancy. Meanwhile, at the age of more

than 35 years, it is associated with decline and endurance as well as various diseases. Various studies have shown that pregnant women aged less than 20 years and more than 35 years tend to give birth to babies with lower weights compared to mothers aged 20-35 years. Mothers who are pregnant at the age of less than 20 years and more than 35 years have a 1.4 to 1.8 times greater risk of giving birth to babies with low birth weight compared to pregnant women at the age of 20-35 years (Nurhadi, 2006)

The highest level of higher education is 37 respondents (53.6%) in the incidence of chronic energy deficiency is not at risk and the lowest incidence is at low education level in chronic low energy deficiency as many as 2 respondents (2.9%). The results of statistical analysis obtained p value of 0.34 which means that there is no significant relationship between maternal education level and the incidence of chronic energy deficiency, and the OR value of 0.46 which means that it is not statistically significant. These results are in line with research conducted (Nining Tyas Triatmaja, 2017) with the results of maternal education there is no relationship with Chronic Energy Deficiency status with a p value of 0.68. Mothers who have education, mothers who have higher education are expected to have high knowledge related to daily food consumption with balanced nutrition so that they can support good nutritional status. In this study, the majority of respondents were highly educated so that they could guarantee the mother's knowledge. Nutrition knowledge is not only obtained through formal education but can be obtained through other media, such as electronic media, counseling, and so on (Widita Kartikasari et al., 2013).

The occupational status of the most respondents did not work as many as 36 respondents (52.2%) in the chronic energy deficiency group that was not at risk, and the lowest was in the working respondent as many as 3 respondents (4.3%) in the chronic energy deficiency group who was at risk. There was no significant relationship between work and the incidence of chronic energy deficiency with a p value of 0.7, and an OR value of 1.3 which means that mothers who do not work have a 1.3 times chance of chronic energy deficiency. In line with previous research, the results of the p value of 0.954, this indicates that there is no influence between workload on the incidence of SEZ. Someone who works can

increase knowledge because of social interaction and social interaction and has extensive experience (Notoatmodjo, 2007) and someone whose life is not busy with work has more opportunities to get information either through health workers or information media (TV, radio, tabloids or magazines). health, leaflets and newspapers) and activities that add experience (Suryatni, 2004) in (Handayani & Budianingrum, 2011).

Family income in this study was mostly high income as many as 31 respondents (45%) in the chronic energy deficiency group who were not at risk while high family income as many as 3 respondents (4.3%) in the chronic energy deficiency group at risk. Obtained p value 0.305, which means that there is no significant relationship between family income and chronic energy deficiency, but family income is at risk of 2.1 times for chronic energy deficiency because the OR value is 2.13. Supported by previous research (Handayani & Budianingrum, 2011) obtained a p value of 0.512 which indicates there is no influence between income on the incidence of SEZ. Consumption of food must be within the reach of the family's finances and contain the necessary nutrients. Estimated food ingredients needed and their prices, if they cannot be purchased with sufficient finances, they can be reduced gradually, namely by reducing the quality of daily food ingredients, replacing staple foods with rice with non-rice, using side dishes that are not too expensive, and choosing vegetables and fruit. which is easy and cheap to obtain, namely by growing your own to save expenses but can still meet daily nutrients without having to buy.

In this study, the majority of respondents had the same parity at risk or as not at risk in both groups, namely 30 respondents (43.5%) in the chronic energy deficiency group, not at risk and the lowest occurred in the non-risk parity group, as many as 4 respondents (44.4%) in the energy deficient group. chronic risk. There is no relationship between parity and the incidence of chronic energy deficiency with a p value of 0.756 and an OR value of 1.25, which means that parity has a 1.2 times chance of chronic energy deficiency. Supported by research conducted (Handayani & Budianingrum, 2011) with the results of the study a p value of 0.820, which means there is no significant relationship between parity and chronic energy deficiency. High-risk parity in pregnancy is grandemultipara, where this affects the

optimization of maternal and fetal health during pregnancy. So it can be concluded that parity of no more than 4 is not at risk of experiencing interference (Manuba, 2010). In line with this study, there was no strong relationship because the number of respondents between parity at risk and not at risk had the same large number in the anemia group as not at risk, namely 30 respondents.

Anemia Discussion

Based on table 4, the results of pregnancy at a young age of 21 years were mostly found in the non-risk anemia group as many as 44 respondents (63.8%) and the lowest in the same group as many as 6 respondents (8.7%). Maternal age during pregnancy has a significant relationship with the incidence of anemia with p value = 0.018 and 0R value 4.2, which means that maternal age <21 years has a 4.2 times chance of experiencing anemia. This result is in line with the 2018 Aulia research conducted in the Ampenan Health Center Work Area, the results of statistical analysis stated that there was a statistically significant relationship between maternal age and the incidence of anemia (p value 0.017 < 0.05). In accordance with the theory which states that the younger the age of pregnant women, the more mentally unstable they tend to be, so they are easily shaken and result in a lack of attention to the fulfillment of nutrients associated with decreased body resistance and the emergence of various diseases (Niven, 2012).

The results showed that the highest education was in the non-risk group, namely 31 respondents (44.9%) in the non-risk anemia group and 6 respondents (8.7%) in the low-education group at risk. Based on statistical analysis, there is no significant relationship between the level of education and the incidence of anemia, but if viewed from the level of occurrence, the researcher assumes that education also has an important influence in shaping one's attitudes and behavior in a positive direction, and is closely related to one's knowledge and understanding of something. What is needed in life, this is very important for pregnant women, knowledge is the initial capital for a mother to take good care of her pregnancy, the higher a person's education, the information obtained will be selected and processed according to needs and understanding. On the other hand, the lower

the level of education, the lower the mindset. This is supported by previous research, it was found that the highest number of education at the secondary education level was 39 people (54.4%) and the least respondents were in the higher education level category, namely 10 people (14.7%) (Amini et al., 2018). A person's level of education affects his knowledge and understanding of something and directs it to positive behavior, as well as health behavior, so it can be said that the higher a person's education, the better the level of knowledge about anemia. On the other hand, the lower the level of education, the lower the mindset so that the absorption of information also decreases (Hidayah & Anasari, 2012).

Occupational status in the group with the highest incidence of anemia in the incidence of anemia is not at risk of 30 respondents (43.5%) with non-working status and the lowest incidence of anemia is at risk of 7 respondents (10.1%) in the group of working mothers.

The majority of high family incomes in the anemia group are not at risk as many as 26 respondents (37.7%) and the lowest in the same income group are 8 respondents (11.6%) in the anemia group at risk. The results of the study are in line with previous research, the results of the analysis of the relationship between income and the incidence of anemia in pregnant women at the Karang Anyar Health Center Semarang City indicate that there is no relationship between income and the incidence of anemia in pregnant women with a p value of 0.230 (> 0.05) (Melorys Lestari Purwaningtyas, 2017). In this study, it was possible because the respondent had experienced pregnancy and learned from experience by doing it and was unable to perform ANC, so the symptoms of anemia were most likely not detected. Income affects the choice of food which will be a preventive effort such as consuming nutritious food and consuming iron.

Non-risk parity had the highest incidence in the non-risk anemia group, namely 27 respondents (39.1%) and the lowest in the non-risky parity group as many as 7 respondents (10.1%) in the anemia risk group. Based on statistical results, there was no significant relationship between parity and the incidence of anemia in pregnant women. This result is supported by previous research conducted by Purwaningtyas and Prameswari (2017) which found that there

was no significant relationship between parity and the incidence of anemia in pregnant women. This shows that pregnant women who have never given birth to children at all or are the first pregnancy determine the possibility of anemia. In this study it is possible because most of the respondents have a higher education level, namely 31 respondents (44.9%) so that in this study respondents who have parity at risk have the opportunity to have higher education so that knowledge about the prevention and impact of anemia on pregnant women will be better.

Body Mass Index Discussion

The results of the study were pregnant at a young age with the incidence of body mass index obtained. In the incidence of body mass index, the overall respondents had a body mass index that was not at risk with the highest number of 56 respondents (81.2%) in the age group during pregnancy 21 years. Based on the analysis of the occurrence of dominant events at the age of pregnant women who are not at risk, so that the experience and maturity of thinking for fulfilling nutrition during pregnancy is good, productive ages have easy access to find information to anticipate a body mass index that is lacking during pregnancy.

In the case of body mass index, all respondents have a body mass index that is not at risk as many as 44 respondents (63.8%) in the higher education group. In the case of body mass index, the total respondents have a body mass index that is not at risk as many as 42 respondents (60.9%) in the group of respondents who do not work. All respondents in this study had a body mass index that was not at risk with the highest incidence of 35 respondents (50.7%) in low family incomes. All respondents in this study had a body mass index that was not at risk with the highest incidence of 35 respondents (50.7%) at risk parity. On the body mass index variable, further statistical analysis cannot be carried out because all respondents are in the body mass index group that is not at risk, so there is no comparison.

Conclusion

Based on the results of the study, there was no significant relationship between early pregnancy with Chronic Energy Deficiency and Body Mass Index in Pregnant Women in Mataram City, then a significant relationship was found between early pregnancy and anemia in pregnant women in Mataram City with a p value = 0.018 and a p value = 0.018. 0R 4.2, which means that the age of the mother during pregnancy <21 years has a 4.2 times chance of experiencing anemia. Knowing the relationship of other factors (mother's education, family income, mother's occupation) with the incidence of pregnancy at a young age. model 1 was chosen as a good model to explain the relationship between early pregnancy and the incidence of anemia because it has the largest R2 value compared to other models, which is 0.10 which can be concluded that young pregnancy contributes to the incidence of anemia by 10%. Pregnant age at risk 4.2 times have contributed to the occurrence of anemia with (95% CI: 1.2-15.13)

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The Effect of Counseling on Dairy Milk Management on The Knowledge and Attitudes of Working Mothers

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Abstract

Based on data from the United Nations Children's Fund (UNICEF) in 2012, only 39% of babies under the age of 6 months receive exclusive breastfeeding worldwide. Riskesdas data in 2013 stated that the success of exclusive breastfeeding was only 54.3%. The coverage of exclusive breastfeeding can be increased if puerperal mothers, especially those who work, can apply dairy milk management. The purpose of this study is to analyze the effect of counseling on dairy breast milk management on the knowledge and attitudes of working mothers in the work area of the Karang Pule Health Center in Mataram City. This research is a pre-experimental design with a one-group pretest-posttest research design. The samples in this study were 30 samples with purposive sampling technique. The data were measured with questionnaires and analyzed using the Wilcoxon Match Pairs Test. The results of this study were that there was a difference in the average level of maternal knowledge of 2.48 and a difference in the average attitude of working mothers of breastfeeding of 24.29 with a p-value of 0.001 which means that there was a significant difference in the knowledge and attitudes of working mothers before and after being given counseling. The conclusion in this study is that there is an influence of counseling on the knowledge and attitudes of mothers working before and after being given counseling on dairy milk management. The suggestion from this study is expected to increase the knowledge and attitudes of working mothers about good dairy milk management so that it can be applied directly

Keywords: ***counseling, dairy breast milk management, knowledge, attitudes, working mother***

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Introduction

Breast milk is an ideal food for babies, and it is very useful for both mother and baby. However, working mothers are more likely to choose not to breastfeed or stop breastfeeding prematurely (Altamimi, et al, 2016). The practice of breastfeeding is exclusively influenced by maternal knowledge and attitudes, as well as socio-demographic and local cultural factors (Mogre, et al, 2016).

Based on data from the United Nations Children's Fund (UNICEF) in 2012, only 39% of babies under the age of 6 months get breast milk exclusively worldwide, so exclusive breast-feeding in the world is still low. China, which is one of the countries with a sizable population in the world, only has an exclusive breastfeeding success rate of 28%. Another country, Namely Tunisia, gave bad news with the percentage of exclusive breastfeeding which decreased very drastically from 45.6% down to 6.2%.

Exclusive breast-feeding in Indonesia is also still lacking, based on Basic Health Research (Riskesdas) in 2012 exclusive breast-feeding in Indonesia reached 27.5%. The latest calculation of the percentage of breast milk based on Riskesdas data in 2013, the success of exclusive breast milk is only 54.3%. This amount has not met the target of exclusive breast-feeding for 6 months set nationally by the government, which is 80% of the number of babies in Indonesia (Riskesdas, 2013). Exclusive breast-milk coverage can be increased if puerperal mothers, especially those who work, can implement Dairy Breast Milk management.

The 2012 Indonesian Health Demographic Survey showed that 57% of the workforce in Indonesia is women. Factors that hinder the success of breastfeeding in working mothers are short time off work, lack of workplace support, short rest time at work (not enough time for milking breast milk), the absence of room for breast milking, the conflict of maternal desires between maintaining work performance and breast milk production.

The coverage of exclusive breast-feeding to infants in West Nusa Tenggara averaged 77.66%, this coverage decreased when compared to the coverage of exclusive breastfeeding in 2016 which was 86.63%. West Nusa Tenggara consists of 11 districts, namely the city of Mataram with an exclusive breastwater coverage rate of 75.48%, West Lombok 95.88%, Central Lombok 90.23&,

East Lombok 78.25%, Sumbawa 81.05%, West Sumbawa regency 67.50%, Bima city 77.31%, Bima 78.67% and Dompu 91.76%. (Profil Kesehatan Provinsi NTB, 2017). Based on this data, the coverage of Exclusive Breast Milk in the city of Mataram is still lacking.

Breastfeeding is the right of every mother, including working mothers, so in order to carry out breast-feeding, complete information is needed about the benefits of breast milk and breastfeeding and how to carry out lactation management. In addition, support from the management, work environment, and empowerment of female workers themselves is needed (Depkes, 2015).

In working mothers, the scope of lactation management in the postnatal period includes exclusive breast milk, how to breastfeed, squeeze breast milk, store dairy breast milk, and give milk (Siregar, 2009). Exclusive breast-milk coverage can be increased if puerperal mothers, especially those who work, can implement Dairy Breast Milk management.

Some things that hinder exclusive breastfeeding include low maternal knowledge and maternal attitudes regarding the benefits of breast milk and the correct way of breastfeeding, lack of lactation counseling services and support from health workers, socio-cultural factors, intensive marketing of formula milk, and factors of working mothers (Dinkes, 2008).

One of the efforts so that information can be understood and can have an impact on changes in community behavior, especially on mothers, is to use counseling as a method of conveying information. This is because counseling is one way of approaching society that is good and effective in order to provide or convey messages or health information with the aim of changing behavior by increasing community knowledge and attitudes (Fitriani, 2011).

The Government's Productive Healthy Women's Workers Movement (GP2SP) is implemented in the central, provincial, districts/cities and companies. The Productive Healthy Women's Worker Movement program is directed at fulfilling the nutritional adequacy of female workers, health checks for female workers, reproductive health services for female workers and increasing breast-feeding during work time at work (Info DATIN, 2015).

Based on the background of the above problems, researchers are interested in conducting research on the influence of counseling on the management of dairy breast milk on the knowledge and attitudes of working mothers in the work area of the Karang Pule Health Center in Mataram City.

Methode

The research method used is pre-experiment design with a "one group pretest-postest" design. The location of this study is in the Working Area of the Karang Pule Health Center in Mataram City and this research was carried out from March to May 2020.

The population in this study was 30 mothers working breastfeeding with the number of samples using total sampling, sampling techniques using purposive sampling by determining inclusion and exclusion criteria.

Data collection will be carried out by distributing questionnaires to working mothers for pretests, then researchers providing counseling on dairy breast milk management. After the counseling was completed, the researcher distributed the questionnaire to the posttest mother. Univariable data analysis using descriptive analysis and bivariable analysis using Wilcoxon Match Pairs Test analysis technique.

Result and Discussion

1. The Effect of Dairy Breast Milk Management Counseling on the Knowledge of Working Mothers

The results showed that the knowledge of working mothers about the management of dairy breast milk before being given counseling, most of the respondents were less knowledgeable as many as 19 people (63.33%), while after being given counseling, most of the respondents were well-informed as many as 21 people (70%).

Based on the results of the Wilcoxon test, it was shown that there was a difference in the level of knowledge of working mothers before and after counseling on dairy breast milk management, where before counseling the average level of maternal knowledge was 5.67 increased to 8.15 after counseling. There is a difference in the average level of knowledge of 2.48 with a p-value of 0.001 which means that there is a significant difference in the level of knowledge after the provision of counseling

and counseling has proven effective in increasing knowledge.

Efforts to increase respondents' knowledge about Dairy Breast Milk can be done by providing counseling in a sustainable and systematic manner so that respondents' acceptance of the information that has been provided can be better absorbed. Information that is conveyed repeatedly will be better remembered and understood.

This is in line with Sari's (2018) research on the effect of Dairy Breast Milk counseling on the knowledge and implementation of Dairy Breast Milk in working mothers that there are significant differences in the level of maternal knowledge before and after counseling on Dairy Breast Milk, where before counseling the average level of maternal knowledge is 5.55 increased to 8.10 after counseling. There is an average difference in knowledge level of 2.45 with a p-value of 0.001.

According to Mira (2013) that to increase maternal knowledge in providing breast milk to babies, it is necessary to have support from the family, especially the support of the husband. Therefore, to increase the coverage of mothers giving breast milk, it is necessary to make more intensive health promotion efforts. The results of Merhika's research (2014) stated that there were differences in maternal knowledge about exclusive breast milk between mothers who were given counseling with the pocket book method, mothers who were given counseling with the simulation method and mothers who were given counseling without being given any method (Merdhika et al., 2014).

According to Machfoedz and Suryani (2013) Health counseling here is a health education activity, which is carried out by spreading messages, instilling beliefs, so that people are not only aware, know and understand but also willing and can do a recommendation that has something to do with health (Machfoedz & Suryani, 2013).

A person's good knowledge can be used as a basis in the formation of one's behavior, maternal knowledge about dairy feeding will bring a deep understanding to the mother about the good or bad effects of giving breast milk. This understanding will be the basis for mothers to behave in giving dairy breast milk to their babies (Tindaon & Hanum, 2019).

The Effect of Dairy Breast Milk Management Counseling on the Attitude of Working Mothers

The results showed that the attitude of working mothers before being given counseling on dairy breast milk management, most of the respondents were in the negative attitude category of 22 people (73.33%), while after being given counseling, most of the respondents were in the category of positive attitudes as many as 21 people (70%).

Wilcoxon's test results showed that there were differences in the attitudes of working mothers before and after counseling on dairy breast milk management, where before counseling the average maternal attitude of 58.56 increased to 82.85 after counseling with a standard deviation of 2.89. There was an average difference of 24.29 with a p-value of 0.001, which means that there was a significant difference in the attitude of working mothers before and after counseling.

A person's attitude is inconsistent because it can still be influenced by other things that the mother considers important. Therefore, for mothers whose attitude is negative, it is necessary to get more intensive information about how the management process of milking of dairy milk when the mother is working, so that the attitude of the mother increases to be positive.

This is in line with Purba research (2017) on the effect of exclusive breast-milk counseling on the knowledge and attitudes of pregnant women, stating that there is a significant influence of exclusive breast-milk counseling with an increase in maternal attitudes before and after being given counseling with a p-value of 0.000 . Merdhika's research (2012) states that by providing counseling, the mother's attitude will change in a positive direction.

According to Azmi (2012), who proved that counseling about exclusive breast milk affects the attitude of mothers in providing exclusive breast milk in Karangawen District, Demak Regency. In addition, Musri's research (2017) on the effectiveness of leaflet promotion media on the knowledge and attitudes of pregnant women about early breastfeeding initiation, states that there are significant differences between the attitudes of pregnant women before and after being given counseling and leaflet media, so it can be interpreted that there is

an influence of counseling with leaflet media regarding Early Breastfeeding Initiation.

According to Lawrence Green quoted by Notoatmodjo (2012), states that a person's behavior is influenced by 3 factors, namely predisposing factors, enabling factors and reinforcing factors. The mother's attitude is a predisposition to factors that can be changed by providing health information or messages.

Conclusion

The knowledge of working mothers before being given counseling on the management of Dairy Breast Milk in the Karang Pule Mataram Health Center Work Area was majority lacking, after counseling increased to a good majority. Meanwhile, the attitude of working mothers before being given counseling on dairy breast milk management was mostly negative, after counseling it increased to a positive majority, so it was concluded that there was an influence of counseling on dairy breast milk management on the knowledge and attitudes of working mothers.

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The Effect of Iron Giving on Hemoglobin Levels in Anemia Pregnant Women

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Abstract

Anemia that occurs during pregnancy has become a global health problem. The amount of iron needed by pregnant women is much greater than that of non-pregnant women so pregnant women have a high risk of developing iron deficiency anemia. The method used in this study is a literature review study. The databases used in the source search are google scholar and Pubmed. The search for articles was carried out by collecting themes about the effect of iron administration on hemoglobin levels in anemic pregnant women. Pregnant women with anemia who consume iron show an increase in hemoglobin levels. Giving iron given for 90 days by consuming it once a day can increase hemoglobin levels by 1 g/dl.

Keywords: ***Iron, Hemoglobin levels, Anemia in pregnancy***

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Introduction

Anemia that occurs during pregnancy has become one of the global health problems with the highest prevalence of anemia in 2021, 56% found among pregnant women in low and middle-income countries, and the lowest at 24.1% reported among pregnant women in South America. Among the World Health Organization (WHO) regions in 2021, Africa has the highest prevalence of anemia in pregnancy (57%), followed by Southeast Asia (48%) including Indonesia (WHO, 2021).

Based on the results of Riskesdas 2018, it is stated that in Indonesia 48.9% of pregnant women experience anemia. As many as 84.6% of anemia in pregnant women occurs in the 15-24 year age group (Kemenkes RI, 2019). Malnutrition predisposes to iron deficiency anemia in pregnant women in Indonesia. The amount of iron needed by pregnant women is much greater than that of non-pregnant women. Pregnant women experience a rapid decrease in hemoglobin and hematocrit because at this time there is a rapid expansion of blood volume. Iron deficiency is not the only cause of anemia, but as the prevalence of anemia increases, iron deficiency is the main cause. Pregnant women have a high risk for iron deficiency anemia (Hidayanti & Rahfiludin, 2020).

Iron is needed in the process of hematopoiesis (blood formation), namely the synthesis of hemoglobin (Hb). According to Purnamasari (2020) iron is an important micro mineral in the formation of hemoglobin which functions in the transport, storage, and utilization of oxygen. Therefore, iron deficiency generally causes paleness, weakness, fatigue, dizziness, lack of appetite, decreased body fitness, decreased work ability, decreased immunity, and impaired wound healing. The results showed that gestational age and hemoglobin levels in third-trimester pregnant women were associated with the incidence of LBW (Fanni & Adriani, 2017). In addition to increasing the risk of LBW, anemia can increase the risk of stillbirth and neonatal death (Patel et al., 2018).

Blood-added tablets (TTD) or iron (Fe) tablets are nutritional supplements containing 60 mg of elemental iron and 0.25 mg of folic acid which can prevent and treat iron nutritional anemia. From the results of the

study, giving iron and folic acid supplementation earlier during pregnancy can prevent iron and folate deficiency more than increasing the dose of supplements in the next stage of pregnancy. Giving this supplement is recommended for pregnant women with a dose of one tablet every day during pregnancy. This recommendation can increase the hemoglobin level of pregnant women (Wildayani et al., 2018).

The purpose of this study was to determine the effect of giving iron tablets on hemoglobin levels in pregnant women with iron deficiency anemia.

Method

The method used in this study is a literature review study that aims to explore the effect of iron administration on hemoglobin levels in pregnant women with anemia. The review process begins with identifying journal articles that are relevant to the research topic. The databases used in the source search are google scholar and Pubmed. The topic of this study was the effect of iron administration on hemoglobin levels in anemic pregnant women. The inclusion criteria for searching for literature sources are the year of publication of the article used starting from 2017 to 2022, in Indonesian and English, and the full article. The search keywords were iron, hemoglobin levels, and anemia in pregnancy.

Result and Discussion

A literature search through an electronic database yielded 54 articles that could potentially be reviewed. After identifying abstracts from 30 articles, 24 articles were selected. Further identification is carried out in more detail to determine which articles are relevant and meet the inclusion criteria in this literature review. From this identification, 5 articles were obtained which will be reviewed in this study.

The five articles selected for review in this study are research that has a relationship with the research topic. A summary of the articles reviewed in the study can be seen in table 1. below:

Table 1. Summary of articles

Writer	Country	Research Title	Research methods	Results
Sari, YO, Darmayanti, D., & Ulfah, M. (2021).	Indonesia	The Effect of Iron and Spinach on Increasing Hemoglobin Levels of Pregnant Women with Anemia in the Working	Quasi-experiment	The results of the analysis showed an increase in hemoglobin levels after iron was given to pregnant women with anemia. . Before being given iron, the mean value was 9.6 g/dl,

		Area of Martapura I Health Center		and the hemoglobin level after being given iron was 10.8 g/dl. During administration, the average change in hemoglobin in pregnant women in the intervention group was 1.43 g/dl. control group 1.17 g/dl.
Ratih, RH (2017)	Indonesia	The Effect of Iron (Fe) Administration on the Increase in Hemoglobin of Pregnant Women with Anemia at RSIA Zainab in 2015	Quasi-experiment	The results of the study obtained a p-value of 0.001. There is an effect of giving iron (Fe) tablets to increase hemoglobin levels in anemic pregnant women with a p.value<0.05
Moh. Irham & Susandi. (2019)	Indonesia	Effect of Serum Iron Injection Therapy on Increasing Hemoglobin Value of Pregnant Women with Anemia	Pre experiment	The results showed that the average hemoglobin level of anemic pregnant women before administration of serum iron 9.75 g/dl, after administration of serum 11.20 g/dl which means that there is an effect of giving serum iron therapy to increase hemoglobin levels in pregnant women with anemia
Riswanda, J. (2017).	Indonesia	The relationship between iron intake and its inhibitors as predictors of hemoglobin levels of pregnant women in Muara Enim Regency.	Observation	Research results obtained Pregnant women with high iron intake have higher hemoglobin concentrations. In contrast, pregnant women with a high intake of tannins and calcium have lower hemoglobin concentrations.
Ahamed, F., et al (2018).	India	Effect of Directly Observed Oral Iron Supplementation During Pregnancy on Iron Status in a Rural Population in Haryana: A Randomized Controlled Trial	A Randomized Controlled Trial	The results of a study conducted under the supervision of anemic pregnant women who consumed iron tablets for 100 days showed an increase in hemoglobin levels.

Anemia in pregnancy is the condition of the mother with HB levels below 11 g/dl in the first and third trimesters or HB levels < 10.5 g/dl in the second trimester. To prevent anemia, every pregnant woman is expected to get a blood-added tablet (TTD) of at least 90 tablets during pregnancy. Iron tablets are mineral tablets needed by the body to form red blood cells or hemoglobin. The element iron is the most important element for the formation of red blood cells (Kemenkes RI, 2020).

According Sari's research (2021) explained that there was an increase in hemoglobin levels in anemic mothers before and after being given iron, before being given iron, the average value was 9.69 g/dl, and hemoglobin levels after iron were given an average value of 10.86 g/dl. . This result is in line with the research of Ratih R (2017). The results showed that the average hemoglobin level in pregnant women with anemia before administration of iron (Fe) tablets was 8.81 g/dl and the hemoglobin level after administration of iron (Fe) tablets was 12. ,58 g/dl. These results indicate that there is an increase in hemoglobin levels in pregnant women with anemia after consuming iron (Fe) tablets of 3.72 g/dl. Age does not affect the low level of hemoglobin in anemic pregnant women. Low hemoglobin levels in pregnant women are influenced by the lack of consuming foods that contain iron and an unhealthy lifestyle.

The effect of iron supplements on pregnant women is not only to meet the needs of the mother but also can help maximize brain growth and baby weight. Fetal weight gain showed lower results in the group of pregnant women. Iron supplementation in pregnant women can reduce by 73% the incidence of anemia in term pregnancy and 67% incidence of deficiency anemia in term pregnancy. This can be explained that iron supplements can increase, among others, reticulocytes, red blood cells, and hemoglobin (Rini hariani, 2017).

Iron is a mineral needed by the body which functions for the formation of hemoglobin. Every 1 mg of iron intake can increase 0.052 Hb concentration (Riswanda, 2017). Based on Moh Irham's research (2019) conducted on a sample of 48 respondents, it was found that the average hemoglobin level in pregnant women who

experienced anemia before administration of serum iron injection therapy was 9.75 g/dl and hemoglobin levels after administration of serum iron injection therapy. is 11.2 g/dl. These results indicate that there is an increase in hemoglobin levels in pregnant women after being given serum iron injection therapy of 1,454 g/dl (Irham & Susaldi, 2019).

One alternative to meet iron needs besides consuming blood-added tablets (TTD) can be done by consuming green vegetables in the diet, one of which is spinach. Spinach that has been cooked contains iron as much as 8.3 mg/100 grams. Adding iron to spinach plays a role in the formation of hemoglobin (Rohmatika & Umarianti, 2018). This is in line with Sari Y's research (2021) which found hemoglobin levels before and after being given iron and spinach in the intervention group with an average value before being given 9.55 g/dl and an average value after being given 10.96 g/dl.

Based on Ahamed F's (2018) research conducted for 100 days to observe iron consumption for pregnant women with anemia, there was an increase in hemoglobin levels of 0.56 g/dl. However, the intervention group still experienced anemia, this could be caused by many factors. Factors inhibiting iron absorption include tannins, phytates, oxalates, and calcium which will bind iron before it is absorbed by the intestinal mucosa into insoluble substances, thereby reducing its absorption. Every 1 mg of calcium and every 1 gram of tannins can inhibit the absorption of iron concentrations of 0.00687 gr/dl and 0.123 gr/dl (Ahamed et al., 2018). With reduced absorption of iron, due to these inhibitory factors, the amount of ferritin will also decrease which has an impact on decreasing the amount of iron that will be used for hemoglobin synthesis and replacing damaged hemoglobin. This is one of the factors that cause low levels of hemoglobin in the blood (Riswanda, 2017).

So, we can know that iron tablets can increase hemoglobin levels in the blood as long as they are consumed properly, whereas iron tablets given for 90 days by taken 1x a day can increase hemoglobin levels by 1 g/dl.

Conclusion

Pregnant women are at high risk of anemia during pregnancy which can threaten maternal and neonatal conditions. Pregnant women experience a rapid decrease in

hemoglobin and hematocrit because at this time there is a rapid expansion of blood volume. Iron is needed in the process of blood formation, iron administration can increase hemoglobin levels of pregnant women when consumed properly for 90 days by consuming 1x a day can increase hemoglobin levels by 1 g/dl.

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The Role of Field Officers of Family Planning (FOFP) in The Unmet-Need Incidents on The Productive Age Couples

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Abstract

The Family Planning Program is a program designed by the government in order to control the rate of population and birth rates, it aims to prosper the family and improve the quality of Indonesian generations in the future. The existence of Field Officers of Family Planning (FOFP) plays an important role in helping the government succeed in carrying out the family planning program, especially in reducing the number of unmet-need for family planning. The research objective is to obtain an in-depth picture of the role of the FOFP in the unmet-need for family planning in the North Denpasar District. This study uses a qualitative design with a single instrumental case study approach. The sample selection in this study used a purposive sampling technique with 10 informants and one key informant namely the Head of Population Control, Counseling and Movement in DP3A.P2KB in Denpasar. Interview results were analyzed using thematic analysis. The results of the study were five major themes namely the role of FOFP as: 1) Managing family planning programs, 2) Driving community participation 3) Family Empowerment and community participation, 4) Building and Developing Partnerships with various parties, and 5) obstacles and barriers.

Keywords: Field Officers of Family Planning, Productive Age Couples, Unmet-need Incidents

Program Keluarga Berencana merupakan program yang dirancang oleh pemerintah dalam rangka mengendalikan laju pertumbuhan dan angka kelahiran, hal ini bertujuan untuk mensejahterakan keluarga dan meningkatkan kualitas generasi Indonesia dimasa yang akan datang. Keberadaan Petugas Lapangan Keluarga Berencana (PLKB) memegang peranan penting dalam membantu pemerintah menyukseskan pelaksaanaan program KB, terutama dalam menurunkan angka kejadian unmet-need KB, oleh karena itu diharapkan Pasangan Usia Subur (PUS) mendukung upaya pemerintah salah satunya dengan ikut berpatisipasi sebagai akseptor KB aktif. Tujuan penelitian yaitu untuk memperoleh gambaran secara mendalam mengenai peranan PLKB terhadap kejadian *unmet-need* KB di Kecamatan Denpasar Utara. Penelitian ini menggunakan rancangan kualitatif dengan pendekatan studi kasus tunggal instrumental. Pemilihan sampel dalam penelitian ini menggunakan teknik *purposive sampling* dengan jumlah informan sebanyak 10 orang dan satu informan kunci yaitu Kepala Bidang Pengendalian Penduduk, Penyuluhan dan Penggerakan di DP3A.P2KB Kota Denpasar. Hasil wawancara dianalisis dengan menggunakan thematic analisis. Hasil penelitian didapatkan lima tema besar yaitu peranan PLKB sebagai: 1) Pengelola pelaksana program KB, 2) Penggerak partisipasi masyarakat 3) Pemberdayakan Keluarga dan partisipasi masyarakat, 4) Menggalang dan Mengembangkan Kemitraan dengan berbagai pihak, 5) Hambatan.

Kata Kunci: Petugas Lapangan Keluarga Berencana (PLKB), Unmet-need Keluarga Berencana, Pasangan Usia Subur (PUS)

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Introduction

The high birth rate in Indonesia is still a major problem in the population. Increasing population in developing countries can have an impact on the economy and public health (Ambarwati, 2012). Based on data from the Central Statistics Agency, the total population of Indonesia in 2010 reached 238,518,800 people, with a population growth rate of 1.49 percent. In 2015, the total population was 255,461,700 people, with a population growth rate of 1.40 percent (BPS, 2016). One of the efforts that can be done to suppress the rate of population growth is to control the factors that affect the rate of growth and implement the Family Planning (FP) program (Pasrah et al., 2014). The family planning program is one of the government programs that can significantly reduce the fertility rate, although the Fertility Rate (TFR) is still increasing. This is due to the high unmet-need for family planning (BKKBN, 2018). Based on the results of the Indonesian Demographic and Health Survey (IDHS), it is stated that the number of unmet-need for family planning in Indonesia is still high at 9.0% (Latifah, 2018).

The percentage of unmet-need must be below the target, so that it can be stated as 'achieved'. The increased coverage of unmet-needs can prevent the family planning program from succeed. Such failure will cause a population explosion and maternal and child deaths. There are four reasons why women do not want to use contraceptives, namely fertility, resistance to using contraceptives, lack of knowledge and fear of how to apply the contraception (Scholastika, 2017). In Law No. 52 of 2009, the vision set by the BKKBN is "To become a reliable and trusted institution in realizing a balanced growing population and quality families" (BKKBN, 2018), to realize the National Family Planning Program, the role of the Family Planning Field Officer (FOFP) is needed. According to Pasrah's (2014) research, FOFP is the spearhead in family planning management in the field. The success and failure of FOFP in the implementation of family planning programs are often identified with the success and failure of FOFP in fostering community participation in family planning programs in their working areas, so as to reduce the number of unmet-need for family planning.

Denpasar City is one of the cities that promote family planning programs. The number of reproductive age couples in Denpasar city in 2018 was 79,402 couples. Denpasar City consists of four sub-districts, namely North Denpasar, South Denpasar, West Denpasar and East Denpasar with

the number of unmet-need in each sub-district, namely 11.6%, 6.09%, 7.3%, and 10.7%. The highest number of unmet-need is in North Denpasar District, which is 11.6% and the lowest is West Denpasar (7.3%) (DP3AP2KB Denpasar City, 2019). The number of FOFP in North Denpasar District is 10 people.

In carrying out its role, the FOFP on duty in each village must have the ability to manage the implementation of family planning program activities, although the implementation process will encounter many obstacles. According to Karyani and Ardana's researcgh, entitled The Role of FOFP in Disseminating Information about Family Planning to the Community in Sudaji Village, Sawahan District, the existence of Family Planning Field Extension Officers (FOFP) plays an important role in implementing community empowerment and family planning programs in the field. The function of FOFP is to provide services to the community by inviting, nurturing and motivating every family to participate in the family planning program in accordance with the BKKBN vision "All families participate in family planning" and the BKKBN mission "Creating a small, happy and prosperous family" (Karyani & Ardana, 2017). The role of FOFP is important to be investigated in an effort to achieve the vision and mission carried out by the organization. Considering that qualitative research on FOFP is still rarely done, the researcher is interested in further research on the role of FOFP on the incidence of unmet-need for family planning in North Denpasar District.

Method

Research on the role of FOFP on the incidence of unmet-need for family planning uses a qualitative design with a case study approach. This research was conducted in the North Denpasar District. The subjects in this study were all FOFP who served in the North Denpasar District, which were 10 people, and one Head of Population Control, Extension and Mobilization of DP3A.P2KB Denpasar City which was used as triangulation. Subjects were selected purposively based on the criteria that they were Staff who served actively as FOFP with a minimum working period of 1 year, knew information about the development of the family planning program, and understand the problems regarding the unmet-need for family planning. Data were collected by in-depth interview method using interview guidelines. Data analysis using thematic data analysis. This research This research has obtained ethical feasibility from the Ethics Commission of the Bina Usada Bali Health College Number: 310/EA/KEPK-BUB-2019.

Result and Discussion

The results of the study are presented in narrative form and there are five main themes related to the role of FOFP in the occurrence of unmet-need for family planning, namely the role of FOFP as the manager of the implementation of the family planning program, driving community participation, empowering families and communities, building partnerships with the community, barriers to FOFP in reducing the incidence of unmet-need incidents.

The existence of Family Planning Field Officers (FOFP) in the success of the National Family Planning program in the field must be followed by the ability and skills to anticipate the demands and challenges of family planning programs in the present and the future such as having the ability to communicate, work with data and build networks or coordinate with various parties (Zuhriyah, 2012). Based on the research results, broadly speaking, FOFP has performed its role quite well in socializing National Family Planning programs. In managing the family planning program, the first thing the FOFP does is make a plan related to the dissemination of information and it is made jointly by other FOFP who work in the North Denpasar District. The existence of good planning has a very positive impact on the successful implementation of an activity because it is in accordance with the expected goals. This is in accordance with what was conveyed by (Haq, 2014) stating that planning in the organization plays an important role and is able to make a significant contribution to achieving success in accordance with the objectives.

The next strategic step taken by FOFP in North Denpasar District, especially in increasing active family planning participation in couples of childbearing ages who have unmet-need is to go directly to the field. In this case, FOFP can directly know the condition, geographical condition of the community, making it easier to provide direction and socialization regarding the importance of family planning programs in accordance with the characteristics of reproductive age couples in each of these areas. The results of this study are in line with research conducted by Nurjami (2021) states that one form of public service carried out by FOFP in Wonokromo Village is by going directly to the community to provide direction and socialization about the importance of family planning programs and conduct population data collection.

Coordination between FOFP and health facilities is also very important, where in this study FOFP was greatly helped by the recording and reporting provided by health workers in health

facilities in their working areas, making it easier for FOFP to monitor and evaluate related to reproductive age couples' participation as an accessor. KB is active. In addition, FOFP together with health workers can also collaborate to help each other in lightening their respective tasks, with good coordination, FOFP can obtain information about the identity of acceptors and prospective acceptors and report back to health workers if there are acceptor data that are not available. appropriate, then in this case the FOFP and health officers can jointly check again to avoid invalid data. Research conducted by Afniyanty (2019) also states that, with good cooperation, the main tasks and functions within an organization can be carried out and run systematically, so that it can help to reduce the workload of each officer and optimize the desired results or goals. To attract family planning acceptors, FOFP distributes brochures as well as provides counseling to the local community which is carried out during the implementation of free posyandu and family planning activities, considering that in these activities more people can be met to be given counseling about family planning programs and FOFP tries to take advantage of these activities. every opportunity that exists so that the goal of reducing the number of unmet-need can be realized immediately.

In supporting its work program, FOFP also acts as a driver of community participation, considering that the family planning program is a top-down program, so in this study, FOFP involves many implementing agents or related parties in order to carry out their duties. Therefore, in the implementation of the family planning program, good coordination is needed between the FOFP and the implementing agency. The parties involved include the Village Planning Assistant, the Women's Family Planning Empowerment Agency, the Community Empowerment Commission, the Family Welfare Empowerment Group, cadre, headman of the village as extensions in information delivery. With the parties involved, it is hoped that information about family planning programs can spread more widely and quickly.

Based on the results of interviews in this study, most of the FOFP experienced problems in distributing information about family planning programs, especially to cadre of Rural Community Institutions (RCI). This is because RCI cadres are not selected based on their level of ability, so training is needed to improve the skills of cadres as extension workers. The results of this study are in line with research conducted by Devi (2016) which

showed that the training attended by family planning cadres was positively related to the level of capacity of family planning cadres in conducting counseling on family planning programs. This means that training has a very important role in developing the capacity of family planning cadres.

Another important role that FOFP must have in empowering families and communities is to become a communicator and motivator. Empowerment in question is the ability to communicate, build power by encouraging, motivating, and raising awareness of the potential of FOFP in disseminating family planning programs to families and communities with the main target being reproductive age couples with unmet-need. Said (2007) states that as a communicator, with his communication style, as well as the ability to understand the character of the subject of his performance targets, the information provided can be conveyed properly to the community related to the family planning program.

In this study, the method used by FOFP in increasing reproductive age couples understanding of the importance of implementing family planning programs is by implementing effective communication. According to Sari (2016) effective communication is a communication that is able to produce an attitude change in people involved in communication, allowing a person to exchange information, ideas, beliefs, feelings and attitudes between two people or groups whose results are in line with expectations and expectations. provide convenience in understanding the message conveyed between the giver and recipient of the message, so as to create good feedback between the giver and the recipient of the message. This is in line with research conducted by Rahman (2019) showing that there is an effect of communication from family planning field officers (FOFP) on the participation of couples of childbearing age in the use of contraceptives in Cigugur Village, Cigugur District, Pangandaran Regency.

In this study, the method used by each FOFP is different depending on the problems faced by reproductive age couples. There are several methods used, among others, by providing individual and group IEC, but between the two methods, individual IEC is considered more effective than IEC for group IEC because reproductive age couples is more listened to by reproductive age couples. Individual counseling is usually carried out by FOFP with the target of one of the unmet-need for reproductive age couples by providing motivation and interpersonal counseling such as for reproductive age couples

who have experienced failure in using contraception, by listening to complaints from the target FOFP can provide solutions and further services.

This method is usually applied at the place of residence of the reproductive age couples itself, in addition the door-to-door method is also often used, especially for women who are rarely able to attend activities related to the family planning program. This is done so that reproductive age couples also know the information about the importance of family planning programs. This is in line with Karyani and Ardana's research (2017) which found that, in providing information about family planning, the FOFP in Sudaji Village took a persuasive approach by making frequent home visits so that information about family planning could be conveyed effectively.

The implementation schedule for individual IEC is mostly carried out every day, while group IEC is carried out to socialize the family planning program with a number of participants from two to ten people or a maximum of 15 people depending on the situation and conditions. Posyandu activities are routinely carried out every month in each banjar, for example one village has 15 hamlets or banjars, so in one month 15 banjars are visited to provide socialization and counseling.

The group approach is one of the most effective ways to use a larger number of targets, such as in outreach activities because it allows feedback and opportunities to exchange experiences (Irmawati et al., 2019). Apart from being a communicator, FOFP in North Denpasar District can also be a motivator, where they are able to change the perspective of families and society, especially reproductive age couples by providing an understanding of the importance of using contraceptives and the importance of maintaining reproductive health, so that some reproductive age couples are willing to accept explanations from FOFP as evidenced by the existence of several reproductive age couples voluntarily want to be registered as active family planning acceptors. In this case, motivation can function as energy or a driving force for someone to behave in a certain way (Rahman, 2019).

The last role of FOFP is an effort to build partnerships with the community. The partnership carried out by FOFP in this aspect is solely to facilitate FOFP in carrying out their duties as extension workers and of course it is not possible for FOFP with a limited number to be able to carry out their roles optimally, therefore FOFP collaborates with various parties such as village midwives, community leaders, religious leaders

and several other institutions. In this case, FOFP must also have the ability to have a social spirit and be easy to get along with from various levels of society. From the results of this study, most of the FOFP stated that establishing partnerships was an important coordination to make the family planning program a success and felt helped by the existence of these parties in disseminating information about family planning to the community. forge partnerships with several community leaders. This is related to the Bali Governor's Instruction (Ingub) Number 1545 of 2019 concerning the Socialization of Balinese manners. In this case the governor of Bali supports the existence of a culture-based family planning program known as "KB Krama Bali" to have four or more children and is associated with the naming sequence from the first to the fourth child, namely "Wayan/Putu, Made/Kadek, Nyoman/Komang, Ketut " This is intended so that the Balinese culture does not fade which has been inherited from generation to generation and considering the scarcity of the name "Nyoman and Ketut", so that there are rejections from some community leaders such as reluctance to listen to information about the National Family Planning program delivered by FOFP, but FOFP is still trying to respect the opinions of community leaders and strive to straighten the intended policy so that there are no misperceptions. This is in line with the research conducted by Sarmita (2019) regarding the analysis of netizens' perceptions of KB Krama Bali which shows the results that the Balinese cultural values adopted have a more important role than other values related to child ownership. If Ingub is associated with the number of unmet-need for family planning, it will certainly affect the high population explosion.

In carrying out these four roles, of course, each FOFP encounters several obstacles. One male FOFP said that he had difficulty approaching and providing counseling, KIE and counseling to reproductive age couples who incidentally was female, so that the information provided was less than optimal because FOFP felt awkward and reproductive age couples was indifferent to information submitted by the FOFP. Gender differences can affect the quality in delivering and receiving information about family planning, while the external obstacle in this study is the difference in views in terms of religion. In this study, FOFP stated that there are still many people who do not want to do family planning because of the belief that family planning is prohibited in religion, especially in Islam because it is believed that children are sustenance and a gift from God. With family planning means rejecting the sustenance

given by Him. This value is a very difficult consideration for people to use contraception. In addition, it is not allowed to insert equipment into the body because it is forbidden, so that FOFP finds it difficult to approach reproductive age couples, especially with unmet-need for family planning. According to Bertrand, belief is one of the keys to family planning acceptance. This is in line with the research conducted by Santoso, et al (Santoso, 2018) showing the results that there is a relationship between belief and the choice of contraceptives. In addition, there is a cultural influence on the use of contraceptives which is also an obstacle for FOFP in disseminating the family planning program in an effort to reduce the incidence of unmet-need.

In this study, FOFP said that many women who did not use contraception, especially in Balinese people because they wanted to have children of a certain sex, almost all of them did not use contraception until they got a boy, even though reproductive age couples included a high risk of getting pregnant again. The results of research conducted by Murniati and Sukma (2017), stated that socio-cultural factors are one of the factors that can influence a person in choosing the type of contraception. The better a person's response to contraceptives, the more the use of these contraceptives will increase. In addition to religious and cultural barriers, FOFP also said that reproductive age couples were afraid to use contraception because of hearing stories or experiences from friends and rumors saying that using contraceptives could cause disease. This causes reproductive age couples to be reluctant to use contraception. The results of this study are in line with research conducted by Samosir, Dharminto and Mawarni (2016) which states that experiences from other people make acceptors choose not to use the same family planning method as other people around because respondents are afraid of repeating events that have already happened.

The lack of support from family and husband is also an obstacle for FOFP to provide counseling, IEC and counseling to reproductive age couples, according to FOFP the lack of support from the family may be due to a lack of understanding of the family and husband about the benefits of using contraceptives. The role of FOFP in this case is expected to further increase their creativity such as forming a happy and prosperous small family by increasing knowledge and understanding of family planning starting from the smallest unit, namely the family, which later on the family can jointly support reproductive age couples to use

contraceptives. Fear of the side effects caused by the use of contraception is also the cause of reproductive age couples not wanting to use contraception, in this case, reproductive age couples prefer not to use contraception rather than having to experience things that can interfere with their health. According to Masita (2013) Knowledge of reproductive age couples is very necessary in considering the choice of contraception that is considered suitable, effective, comfortable and safe for him. The basis for choosing contraceptives in reproductive age couples tends to see complications that are severe, efficient, acceptable to themselves and the community.

Another obstacle was the infrastructure provided by the National Family Planning Coordinating Board (BKKBN) of the Province of Bali is sufficient, where FOFP is provided with two-wheeled vehicles and communication tools (mobile phones), but the procurement of laptops or computers has not been fulfilled optimally. This is one of the obstacles for FOFP in completing their tasks. According to Afniyanti (2019), if work facilities are available that are in accordance with the needs of the Family Planning Field Officer, a conducive working atmosphere will be created, so that work can be completed effectively and efficiently.

Conclusion

FOFC in North Denpasar Sub-district has carried out its role well and has played an active role in activities related to the implementation of the National Family Planning program in an effort to support government programs to increase active family planning participation in reproductive age couples, so that it can suppress events that do not need family planning. FOFP as the manager of the implementation of the Family Planning program makes various efforts to attract active family planning participation, including through counseling, IEC, distributing brochures and conducting good coordination to health facilities in the North Denpasar District. Submission of information about the family planning program involves various parties such as PKKBD, BPPKB, PKM, cadres, PKK women, Heads of Environment, Hamlet Heads and Village Heads who are extensions of FOFP, in this case the role of FOFP as a driver of community participation. In addition, the next step is to increase knowledge and understanding of families and communities about the importance of using contraceptives by implementing communication. To optimize its role in suppressing the incidence of unmet need, FOFP

mobilizes and develops partnerships with various parties such as KB Pos, village midwives, community leaders, religious leaders in disseminating information related to family planning programs, especially in EFA with unmet need for family planning. Some of the obstacles faced by FOFP in working face difficulties in providing education about gender differences, differences in beliefs in terms of religion and culture, where there is a prohibition on using contraception in the Muslim religion and the necessity to have sons in Balinese society, so that FOFP it is difficult to invite EFA to become active family planning participants and also the availability of infrastructure that still needs to be improved to support FOFP performance, especially in suppressing the unmet need for family planning so that it can be achieved optimally.

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