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PREFACE

Assalamu'alaikum Wr. wb

Praise be to Allah SWT who always gives His grace to all of us, so that we can publish the Proceedings of the International Conference on Health and Midwifery as an effort to improve the Tri Dharma of Higher Education.

This proceedings are proceedings published by AKBID Wijaya Husada as a means to present the development of science and technology in the field of health services. In the process, of course, there are not a few obstacles, but with the help of various parties who never stop they can be overcome.

This proceeding can be used by Lecturers, as well as other Health Students who are interested in health issues. We hope that the publication of this proceeding can be a forum for various knowledges for lecturers and students. And with the presence of this proceeding, it further triggers the growth & development of a scientific writing culture and enthusiasm for work among us.

Happy reading & hopefully useful

Wassalamualaikum warahmatullahi wabarakatuh

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THE EFFECT OF OXYTOSIN MASSAGE ON BREASTFEEDING PRODUCTION

Nurlita Bintari K, Martinah, Asma Hasanah

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ABSTRACT

According to Healthy Demographic Indonesia Survey the mortality rate (IMR) is still high, 32/1,000 live births. Today is around 40% of under-five deaths occur in the first month of a baby's life, with breastfeeding reduces infant mortality by 22% under 28 days, child mortality can be prevented by early exclusif breastfeeding.

So that, the knowing massage effect of oxytocin on brestfeeding production Bangunjaya's Posyandu Cigudeg District Bogor.

This research is a quasi-experiment studies is a study by conducting experiments. The research samples were 30 nursing mothers, with 15 people as controls and 15 people others as treatments. Data collection tools in this study is the observation sheet form.

On the based changes in breastfeeding production to the intervention and control groups in get the p-value 0.009 <a (0.05), then Ho is rejected, it means that there is a massage effect of oxytocin on breastfeeding production in Bangunjaya,s PosyanduCigudeg District Bogor.
Keywords: Oxytocin Massage, breast feeding production.

INTRODUCTION

According to the Indonesian Health Demographic Survey (SDKI) the infant mortality rate (IMR) is also still high, 32 per 1,000 live births. That number only dropped slightly from the 2007 IDHS IDB, which 34 per 1,000 live births (IDHS, 2012). Currently around 40% of under-five deaths occur in the first month of the baby's life, with breastfeeding reducing 22% of infant deaths under 28 days, so that infant and under-five deaths can be prevented through early exclusive breastfeeding from the time the baby is born early in life.

At present, the number of mothers giving exclusive breastfeeding to their babies until the age of 6 months is still low, which is less than 2% of the total number of women giving birth. Not all postpartum mothers directly express breast milk because milk expenditure is a very complex interaction between mechanical stimulation, nerves and various hormones that affect oxytocin release. ASI expenditure can be influenced by two factors, namely production and expenditure. ASI production is influenced by the hormone prolactin while expenditure is influenced by the hormone oxytocin.

Massage or stimulation of the spine, the neurotransmitter will stimulate the medulla oblongata directly sending messages to the hypothalamus in the hypofiseposterior to release oxytocin, causing the breasts to secrete milk. Oxytocin massage is one solution to overcome the smooth production of breast milk.

The purpose of this study was to determine the effect of oxytocin massage on breast milk production in breastfeeding mothers in the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency

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RESEARCH METHODS

This type of research is a quasy experimental study, which is a study by conducting an experiment, which aims to find out the symptoms or effects that arise, as a result of the existence of certain treatments or experiments. The design of this study is to use a Non randomized pretest posttest control group design in this design involving two

subjects, one given treatment (experimental group) and those not given anything (control group).

The study was conducted at the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency on June 25 to March 10, 2016. The population in this study was 30 mothers breastfeeding on the 10th day to the 17th day. By taking the total sampling technique of determining the sample by taking all members of the population as a sample so that the sample in this study were 30 mothers breastfeeding the 10th day to the 17th day, with 15 people as controls and 15 others as treatments.

The variables of this study consisted of oxytocin massage and milk production. Data processing and data analysis using computer program SPSS for Windows 20 series. Bivariate data analysis is analyzing milk production before and after oxytocin massage in the intervention group of breastfeeding mothers, analyzing milk production on the 10th day and 17th day in the mother control group breastfeeding, and analyze the effect of oxytocin massage on milk production in the intervention and control groups.

RESEARCH RESULT

Characteristics of the general description and location of the study, this research was carried out in the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency.

Distribution of Characteristics Frequency Responded based on the age of postpartum mothers in Posyandu, Bangunjaya Village, Cigudeg Sub-District, Bogor Regency, showed the number of respondents grew between 20-29 years for groups supporting 12 people (80%) and for groups controlled by 13 people (87%) .

Distribution of Characteristic Frequency Responded based on Education in Posyandu Desa Bangunjaya, Subdistrict of Cigudeg, Bogor Regency. shows that most of the respondents' education is junior high school (SMP) for the intervention group of 8 people (53.6%) and for the control group of 9 people (60%).

Distribution of Characteristic Frequency Responded based on Work in Posyandu Desa Bangunjaya, Subdistrict of Cigudeg, Bogor Regency shows that the biggest respondents' jobs are IRT for groups that intervene 10 people (67%) and for control groups only 9 people (60%).

The results showed parity or the majority of children were primipara for the comparison group of 13 people (87%) and for the control group won 12 people (80%).

Breast milk production before and after oxytocin massage in the intervention group in the Posyandu area of Bangunjaya Village, Cigudeg District, Bogor Regency showed the results of statistical tests obtained ρ-value = 0.02 (p-value <0.05) -0.47 after the respondent was given a massage oxytocin and the increase was approved using the Wilcoxon test which collects anything that supports improvement in safety (p-value <0.02). To accept this hypothesis the Wilcoxon test was used because the production of breast milk before and after completing was not normally distributed (p-value <0.05). The results showed what is meant by oxytocin massage on milk production in the intervention group with a p-value = 0.02 (p-value <0.05).

The production of breast milk before and after the oxytocin massage in the control group in the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency showed that the statistical test results obtained ρ-value = 0.564 (p-value> 0.05) showed how to increase milk production by - 0.07 in 17th day and the Improvement was approved using the collected Wilcoxon test for which no improvement was given (p-value = 0.564). To test this hypothesis the Wilcoxon test is used because the production of breast milk on the 10th day and 17th day has an abnormal distribution (p-value <0.05). The results showed that there was no interaction of oxytocin massage on milk production in the

control group with a p-value = 0.564 (p-value> 0.05).

The Effect of Oxytocin Massage on Breast Milk Production in the intervention and control group in the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency, the results of the statistical test obtained a p-value of 0.009 (p-value <0.05). This result also shows that the average milk production after being given oxytocin therapy in the intervention group was 19 while the average milk production on the 17th day in the control group was 12, this shows an average number of 7 in the group given massage therapy oxytocin with a group not given oxytocin massage therapy. The results showed what is meant by oxytocin massage on milk production in the intervention and control group on the 17th day with a p-value = 0.009 (p-value <0.05).

DISCUSSION

A. Production of breast milk before and after doing oxytocin massage at the Intervention Group in the Posyandu, Bangunjaya Village, Cigudeg District, Bogor Regency.

Breast milk was 0.47 after postpartum mothers were given oxytocin massage therapy and the increase was after using the Wilcoxon test which collected funds to support the increase (p-value = 0.02). To accept this hypothesis the Wilcoxon test was used because both before and after the administration was not normally distributed (p-value <0.05). Oxytocin massage is carried out for 15 minutes at least once a day to reflex the oxytocin or the reflex is let down namely the stimulation of baby sucking through nerve fibers, stimulating the back of the pituitary to secrete the hormone oxytocin into the blood. Oxytocin causes myoptel cells that alter alveoli and ductuli to contract, so that milk flows from alveoli to ductuli to sinuses and nipples. (3) This result is also supported by Suryani's study (2012) which was collected on research on the combination of oxytocin on breast milk production in postpartum mothers in the Klaten Regency region with indicators of infants equipped with additional bodies, infant BAK, and breastfeeding infants with a p-value of 0.001. (21)

b. The 10th and 17th days of ASI production in the Control group was at the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency

The results of this study indicate that there was an increase in breast milk production of -0.07 on the 17th day and the increase was approved using the collected Wilcoxon test which did not add to the sponsored increase (p-value = 0.564). To test this hypothesis the Wilcoxon test is used because the production of breast milk on the 10th day and 17th day is not normally distributed (p-value <0.05). Assessment of milk production can be seen from several indicators such as signs of adequacy of breast milk in infants that is not losing weight more than 10% in the first week. The baby's weight will increase again and weigh the same as the birth weight on the 10th day. Furthermore, the baby's weight will increase 200-250 grams per week. (15) The results of research conducted by Hartini (2014) at the Kasihan II Yogyakarta Health Center on the Relationship of Mother's Education to ASI Production obtained p-value = 0.003 (p-value <0.05). These results state that there is a relationship between the level of mother's education with breast milk production. The higher the level of education, the higher the milk production. (23) For respondents in this study, the majority of education levels were junior high. The importance of education level to the production of breast milk.

B. The Effect of Oxytocin Massage on Breast Milk Production in the Intervention and

Control Group in the Posyandu of Bangunjaya Village, Cigudeg District, Bogor Regency

Based on research conducted shows the average production of breast milk after oxytocin massage therapy in the intervention group of -0.47 while the average production of breast milk on the 17th day in the control group of -0.07 this proved to represent an average effect the production of breast milk in the group given oxytocin massage therapy with the group not given oxytocin massage therapy. After the Wilcoxon Test was performed, the p-value of 0.009 was obtained because the p-value <a (0.05), so Ho was rejected which has the meaning as an oxytocin trigger for breastmilk production in Posyandu, Bangunjaya Village, Cigudeg District, Bogor Regency. Oxytocin massage is one solution to overcome the smooth production of breast milk. Oxytocin massage is massage along the spine (vertebra) to the costae bone, which must be handled and followed by the hormones prolactin and oxytocin (Yohmi & Roesli, 2009). Automatic exit. (3) In accordance with the results of research conducted by Surya (2014) on Oxytocin Massage to Accelerate Breast Milk Production in Post-normal Normal Mothers In Sono Hamlet, Ketanen Village, Panceng Gresik District in 2014, a p-value = 0,000 (p-value < 0.05) the results expressed as oxytocin massage have a significant impact on milk production. (25)

CONCLUSION

1. There is a change in milk production in postpartum mothers day 17 with a p-value = 0.02 (p-value <0.05) after a meaningful intervention related to oxytocin massage on milk production.
2. There was no change in ASI production in postpartum mothers day 17 with p-value = 0.564 (p-value> 0.05) in the control groups which meant there was no combination of oxytocin massage on milk production.
3. From the statistical test results obtained p-value = 0.009 so that it can be denied is associated with oxytocin massage on milk production in the intervention and control groups with a p-value = 0.009 (p-value <0.05) then Ho is rejected.

SUGGESTION

Midwives can provide counseling on public health about midwifery care for postpartum mothers and postpartum visits to read danger signs or problems that mothers need after giving birth.

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THE ROLE OF HUSBAND IN ASSISTING WIFE WHO SUFFER ANEMIA IN PREGNANCY

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ABSTRACT

Problem in anemia which is commonly suffered by pregnant women is iron deficiency due to unbalanced nutrition. A qualitative research with Ethnomethodology approach. Participants were pregnant women who are anemic with Hemoglobin levels (Hb) less than 11g/dl. 38 of participants consisting of 19 husbands as focus groups and 19 wives as triangulation group obtained through purposive sampling technique. Data obtained through the method of focus groups discussion and in-depth interview, analyzed using descriptive analysis techniques.The result showed that the husband's role in assisting the wife who suffered from anemia in pregnancy is lacking due to lack of husbnd knowledge about anemia, its causes and how to deal with anemia in pregnancy. The conclusion is the role of husband in assisting wife in pregnancy should be supported with husband's good knowledge about anemia, its causes and how to deal with anemia in pregnancy in order to prevent anemia in their wives' pregnancies.

Keywords: Role; Husband; Knowledge; Anemia; Pregnancy

INTRODUCTION

Anemia in pregnancy will affect the health and welfare of women. It also increases the risk of harm for mother and children. Anemia in pregnancy is also called "Potential danger of mother and child." Anemia contributes bad impact for pregnancy, labor, and perpurium. The most common cause of anemia in pregnancy is lack of balanced nutritional consumption, especially iron deficiency. A wife will be able to undergo her pregnancy safely if the husband has the knowledge regarding anemia, its cause, and its management. Their lack of knowledge about anemia will affect the health of their wife, because the decision and action of the husband will affect the life of his wife.

The highest proportion anemia in woman both in developed or developing country occurred during pregnancy. WHO reported 37-75% (50% average) of pregnant women have anemia in developing country and 18% of pregnant women have anemia in developed country. The prevalence of anemia in pregnant women worldwide is 38%. National data collection of anemia in pregnancy showed 28% prevalence. Therefore, anemia in pregnancy in West Java is considered moderate level of health problem, which need to be noticed. The prevalence of anemia in pregnancy is 16.7%. The prevalence of anemia is higher in the rural area (22%) than in the urban area (19%). According to west Java Demography and Health Survey, iron deficiency anemia is one of the most common nutritional problem (TLDHS 2009/10).

Maternal mortality rate (AKI) is one of the indicator for illustrating the degree of public health. According to the data from RISKESDAS, in 2010, national maternal mortality rate was 660 death for 100,000 living birth and 557 death for 100,000 living birth, respectively. Based on these finding, West Java is predicated as one of the country with the highest maternal

mortality in the world. High maternal mortality is caused by several factors, which affect pregnancy and labor itself, either directly or indirectly. Most of the cause of death are complications during and after labor. The complications are known as Classic Triad of obstetrical complication consisting of hemorrhage (50.2%), eclampsia, and sepsis/infection. According to SDKI Survey, indirect causes of maternal mortality are chronic energy deficiency (27%) and anemia (28%).

According to registration result of kohor in 2014, pregnant women in Pasir Mulya (Pasir Mulya Community Health Center), 676 out of 18,492 pregnant women have anemia. Anemia according to maternal age classification: a) Age <19 year 27/507/ (5.3%); b) Age 20-34 year 632/17472/ (3.6 %); and c) Age >35 year 17/513/ (3.3 %). All 676 pregnant women with anemia are married. Therefore, the husband play an important role to accompany and monitor the health condition of his pregnant wife.

Anemia in pregnancy affect both maternal and fetal health. This correspond to study by Rukuni (2015), which found that anemia in pregnancy could increased the risk of post partum hemorrhage, post partum infection, and stillbirth, resulting in maternal and fetal morbidity and mortality. Anemia also increases the risk of low birth weight (Karasahin, 2006; Labir, 2013; Kozuki, 2012; Budiono, 2013;). Anemia in pregnancy is one of factor that have a strong correlation to Sectio Caesarea (Mulyawati et al.; 2011).

The prevention of anemia have been performed by the government through the program of iron tablet administration for pregnant women. However, this program had not delivered a satisfying result. The proportion of pregnant women who consumed iron supplement during pregnancy increased from 43% in 2003 to 61% in 2009. Nevertheless, only 16% of pregnant women consumed iron supplement with appropriate recommended dose for 90 days as reported by National Strategy on Reproductive, Maternal, Newborn, Child and Adolecent Health (NSMNCAH 2015-2019).

Pregnant women are vulnerable to several health problems, either health problem of the diseases related to pregnancy itself or another health problem related to unbalanced nutritional intake. These correspond to the role of the husband to maintain and increase the health of his pregnant wife so she could be spared from anemia in pregnancy. This important role of the husband determined the health of pregnant women and reduced the risk of anemia in both mother and fetus.

The problem of this study: what does the husband know about anemia in pregnancy, what does the husband known about the cause of anemia in pregnancy, and how the husband managed anemia in pregnancy of his wife.

The general aim of ths study was to explore the role of the husband in accompanying his wife who suffered anemia in pregnancy. The specific aim of this study was to describe knowledge of husband regarding anemia in pregnancy, its cause, and its management.

METHOD

This study used etnomethodological approach. Etnomethodology is a study of how individual create and understand their daily activities. Therefore, etnomethodology studies social reality about daily interaction. This study assessed the role of husbands in accompanying their wife, who suffered from anemia in pregnancy, with the following variable: husband knowledge of anemia in

pregnancy, its cause, and its management. The participants were pregnant women with anemia and haemoglobin (Hb) less than 11gr/dL regardless of their age of pregnancy, using purposive sampling method. We obtained primary data from focus grup discussion (FGD) and in-depth interview. Instrument used for this study was guideline of FGD, tape recorder, and field notes. We analyzed the data using descriptive analysis.

We used the following inclusion criterias:

pregnant women with anemia and Hb less than 11 gr/dL, native Timor-Leste husband of pregnant woman with anemia, both husband and wife voluntarily agreed to provide the information needed, and both husband and wife were not suffering from mental disorder. The exclusion criteria were as follows: pregnant women without anemia, anemic pregnant women with no husband, non-native Timor- Leste husband of anemic pregnant woman, both husband and wife did not voluntarily agree to provide information needed, and both husband and wife were suffering from mental disorder.

There were 38 participants, consisting of 19 husbands as focus group and 19 wives as triangulation group. We selected informants according to FGD criteria and divided them to 6 groups based on age of pregnant women. Pregnant women less than 19 years of age,

20-34 years of age, and more than 35 years of age. We coded each characteristic as following: A for husband of pregnant women less than

19 years of age, B for husband of pregnant women 20-34 years of age, and C for husband of pregnant women more than 35 years of age. We used code from transcript note during the interaction with informant.

We conducted the study from January 6th 2016 until January 22nd 2018 in West Java, Bogor. We recruited informant homogenously. We selected the group with higher risk who was native Timor-Leste husband of pregnant woman with anemia as target of this study. This was intended to describe details of how husbands accompany their anemic pegnant wife. This process used patriarchy system, where the husband, as the leader of the family, decided all of things related to the health of his anemic pregnant wife.

RESULT AND DISCUSSION

The average age of the informants was 20-50 year, which is productive age. Productive means they work and look after their wife during pregnancy. Educational background of the informants varied from elementary school, junior high school, high school, and college graduate. This was intended to understand how far educational background affect the knowledge of the husband about anemia in pregnancy. We found that both husband with high and low educational background have low understanding regarding anemia in pregnancy, its cause, and its management. Occupation of the informants varied from merchant in the traditional market, driver, civil employee, private employee, lecturer, and 4 unemployed husbands. This was intended to understand how far husbands role in taking care of their anemic pregnant wives are. We defined role of husband as a particular position of the husband while accompanying his wife in her pregnancy period, who was suffering from anemia. Anemia in pregnancy is a risky condition for pregnant woman herself and for the fetus inside her uterus. The most prevalence type of anemia in pregnancy is iron deficiency anemia. Pregnant women are vulnerable to several health problems, either health problem of

the diseases related to pregnancy itself or another health problem related to unbalanced nutritional intake.

The knowledge of husband about health is a significant factor that affects the health of the wife. This is important, because the knowledge of the husband is a form of support for the wife during pregnancy. The good knowledge of husband about health, especially about anemia, which is caused by unbalanced nutritional intake, will make a husband provide enough nutrition for his wife. When the wife started to vomit, feel nauseous, and grow weak, a husband with good health knowledge would provide his wife a small portion of food repetitively to fulfil her nutritional need and keep her healthy. Knowledge of the husband will affect his decision and behavior.

The role of husbands to accompany and optimally look after their pregnant wife with anemia is dependent on husband knowledge regarding anemia, its cause and how to manage the anemia, especially in pregnant wife. With sufficient knowledge, the husband could show his optimal role that is manifested in the behavior or looking after his wife who suffered from anemia. The role husbands play was not solely due to the anemia in their pregnant wives, but they also need to know anemia is a disease, that affect both the child in the womb, and the mother and not complicate labor. In addition, husbands should about the cause of anemia and what need to be done by the husband in managing anemia in pregnancy.

To fulfill the role of assisting and looking after their pregnant wife with anemia, husband needs to prepare adequate knowledge and understanding. Husband as the closest person to their wife and as a partner should accompany, improve the health of their pregnant wife, and makes them feels comfortable and happy during days of pregnancy, so it automatically improve their health to avoid anemia that will endanger both the mother and the baby inside the womb.

This study showed that husband role related to knowledge of anemia in pregnancy based on each answer and analysis result on informant that is husband (A1 through A6, B1 to B6 and C1 up to C7) grouped in 8 answer that is, first: anemia as lack of blood (Informants A3, A4, A5, C5 and C7), second: anemia as lack of nutrient (Informants B1, B4, C3 and C4), third: anemia as lack of appetite (Informants B2 and C6), fourth: anemia as lack of vitamin (informants B3 and B5), fifth: anemia as lack of food intake (informants A1), sixth: anemia as lack of white vegetables and water intake (informant A2), seventh: anemia as difficulty in eating and drinking (informant B6), and eighth: could not figure out what anemia in pregnancy is. Those answers showed lack of knowledge regarding anemia in pregnancy among husbands. By definition, anemia in pregnancy is a condition in which a decrease in the number of red blood cells or hemoglobin is less than 11 g/dl, which is clearly different from the answer of the informants.

Knowledge is information that is known or recognized by someone. Knowledge arises when a person uses reason to recognize a thing or event that has not been seen or felt before. Good knowledge of the husband would affect the awareness and involvement in looking after the pregnancy of anemic wives manifested through improving nutrition or food of pregnant women, maintaining physical and mental health of the mother. With good knowledge, husbands have a good insight about anemia so they could pay attention to, remind and choose the nutrition or a balanced diet for the

pregnant wives, in doing so contributed to lowering the risk of pregnant women with anemia. Husbands armed with good knowledge of their wives' pregnancy would control their wives' diet, provide extra-quality food and motivate their wives' to diligently consume nutritious foods. To support and maintain the health of the wives during pregnancy, husbands are expected to have a good knowledge because the pregnancy is not only a concern for mothers but husbands also took an important role in preventing trouble in pregnancy. Lack of knowledge undoubtedly affects maternal health outcomes because husbands' decisions and actions will affect wives' life and morbidity.

The result of the lack of husbands' knowledge about anemia in pregnancy is strengthened by study conducted by Purbadewi (2013), who found that people who have less knowledge about anemia, such as understanding about its definition, its cause, signs and symptoms, complication, as well as about health behaviors to prevent the occurrence of anemia, were less likely to avoid anemia in pregnancy. This study was also reinforced by Ramadani (2011), who showed higher anemia incidence in people with less knowledge level (73,1%) than those with good knowledge (26,9%).

We believed that during this time period, husbands have not played an optimal role in accompanying pregnant wife, and the anemia in pregnancy was caused by husbands' lack of knowledge about anemia in pregnancy, so husband do not have good knowledge in choosing foods rich in iron, protein, vitamin C from fruits and vegetables that are very important for the health of pregnant wives to prevent anemia in pregnancy.

The study found that the role of husbands related to their knowledge of the causes of anemia in pregnancy was evident from each of the informant answers and according to the results of the analysis conducted on the husband's informants, that are (A1 to A6, B1 to B6 and C1 until With C7) grouped into 11 answers to the cause of anemia (A1 through A6, B1 to B6 and C1 to C7) grouped on 11 answers to the cause of anemia that are, first: lack of rest (informants A1, A2, A4, A5, C1, C2, C4, C5 and C7), second: lack of drinking water (informants A2, (informants A3, A4, A6 and C2), third: lack of vitamin containing foods (informants A4, B1, B2, B4 and B5), fourth: lack of nutritious food (informants C4, C5 and C7), fifth: avoid strenuous work (informants B1, B5 and B6), sixth: lack of eating (informants C1, C2 and C3), seventh: the husband gives attention (informants B2 and B3), eighth: (informants C3 and C7), ninth: lack of appetite (informants C2 and C6), tenth: economic condition (informant C1), eleventh: too much television (informant C2). These answers indicated that husbands' knowledge regarding the causes of anemia in pregnancy was lacking, it was clear between the husbands' answer and the actual cause of anemia, which is generally caused by a deficiency of balanced nutrition, especially iron deficiency in foods, than other factors such as diseases.

That husbands knowledge about cause of anemia in pregnancy was lacking, was reinforced by of Ekowaty (2007), who found that husbands have not play an optimal role in maintaining nutritional status of pregnant mother. Our interview and observation found that many husbands do not properly understand nutrition needed during the process of pregnancy and other types of nutritious foods. Similarly, Purbadewi (2013), reported that people with less knowledge about anemia will behave negatively, while people who have good knowledge will

behave positively in to prevent or treat anemia. This caused those less knowledgeable to prepare food both less in quality and amount.

We argue that husbands have not been playing an optimal role in accompanying their wives who were pregnant and anemic, because the husbands' knowledge about the cause of anemia in pregnancy was lacking, so husbands did not pay attention to their wives' diet, leading to wives easily getting anemia in pregnancy.

The study found that the role of husbands related to husband's knowledge about how to manage anemia in pregnancy was evident from each husband's answer and according to the results of analysis conducted on the husband's informant namely (A1 to A6, B1 to B6 and C1 up to C7) grouped into 11 (eleven) answers on how to treat anemia, first: preventing overwork (informants A2, A3, A4, A6, B5, B6 and C6), second: provide vitamins-containing food (informants A4, B1, B2, B4 and B5), third: buy fruits (Informant B3, C2 , C4 and C5), fourth: provide nutritious food (informants C2, C4 and C7), fifth: help in preparing meal (A5, B6 and C6), sixth: invite wife for a walk (informants A3 and A4), seventh: provide enough food (informants C1 and C5), eighth: avoid stress (informants A4 and C1), ninth: buy vegetables (informant A3), tenth: wash clothes (informant A5) and eleventh: refrain from drinking coffee and tea (informant C3). These answers showed the husbands' knowledge of how to deal with anemia is lacking. It was clear between the answers of informants and the actual treatment of anemia and ways to prevent it, which among others are, improving the diet of pregnant women, for example by increasing consumption of foods that contain lots of iron such as: eggs, milk, fish, liver, fish, meat, beans (tempeh, tofu, soybeans, green beans) dark green vegetables (kale, spinach, katuk leaves) and fruits (oranges, guavas and bananas) (Syafrudin, 2011).

The study revealed that husbands' little knowledge about how to manage anemia in pregnancy will affect the health of wives especially anemia caused by unbalanced nutritional intake. Therefore, husbands have been providing insufficient support by not providing enough nutrition for their wives.

The study also found that during pregnancy, the foods consumed daily by the pregnant mother/wife were unbalanced. They were especially eating less fruits and animal protein that contain lots of iron, potentially leading to high prevalence of anemia in pregnant woman. Based on FGD results with informants, the average wife said that:

"Meat and fruit eat once in a while. Every day only eat rice and vegetables"

The result that husbands' were lacking knowledge about the ways and practices to manage in pregnancy was supported by Purnadhibrata (2011), which stated less energy and protein consequently decreased work productivity, as the body became weak because iron could not be absorbed perfectly due to limited availability of heme in protein. To keep the nutritional content consumed by the pregnant wife fulfilled, the role of husbands was to remind and choose the right daily diet for wives. Essential nutritious foods necessary for the wife during pregnancy through daily diet include calories, protein from vegetables and vegetables, and vegetables and fruits that contain lots of vitamin C. Adequate nutrition could be obtained by consuming various types of food every day.

The result that husbands' were lack in knowledge about ways and practices of anemia treatment in pregnancy was supported by Wardyani (2012), who found that 44, 1% of husbands did not know about the wives' diet during pregnancy. Another relevant study also found that 44.9% of husbands failed to provide nutritious food to their pregnant wives. Kwopong (2012), found that the cause of pregnant women easily developing anemia was poor diet (63%).

The result that the husbands were lacking in knowledge regarding the ways and practices of anemic management in pregnancy supported by Ishak S (2005), who studied involvement of husbands in the nutrition or diet of pregnant women and found that of 96 study subjects or husbands inquired, 74 (77,1%) reported paying attention to dietary intake of wife especially during pregnancy, while 22 (22,9%) others say not too concerned with state of nutrition during the pregnancy of their wives, it means nutrition or good food during pregnant wife or not pregnant is no different. This research is in line with the study by Umami (2007), which found that most respondents (55,1%) provide nutritious food for their wives but many (44,9%) still do not provide nutritious food for their wives.

We believed that husbands' knowledge of the ways and practices of anemic management in pregnancy is lacking that husbands did not know how to treat their wives with anemia by improving menus and increasing consumption of foods containing plenty of iron from animal and vegetable proteins, green vegetables, and fruits.

CONCLUSION

Our study concluded that the role of the husbands in accompanying their wives who have anemia in pregnancy was still lacking. This was due to lack of knowledge about anemia, it causes and it management in pregnancy. We have a few suggestion in this study: First: Health Institution should improve maternal and child health program by involving husband during pregnancy examination in the examination room so husbands can understand the cause and how to solve every problem. Health Institution should increase the dissemination of information about anemia in pregnancy to married couples, through health promotion activities both through print and electronic media as well as Personal Medical Treatment/ Konsulta Saude Pesoal (KSP), so couples (husband and wife) could learn about anemia and how to manage it in pregnancy to prevent the occurrence of anemia in wives. Second: Maternal and Child Health Officers at Pasir Mulya (Puskesmas) should provide counseling nutrition education and prevention of anemia in pregnancy to anemic pregnant mother along with her husband and that pregnant women consume foods high in iron and regular Fe tablet consumption during pregnancy. Third: The husband's active role in seeking information about anemia, causes and ways of handling anemia in pregnancy by asking health workers, when accompanying the wife to conduct pregnancy checks in health facilities would help husbands understand and have effective measures to help their wives.

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TRADITIONAL BIRTH ATTENDANTS (TBAs) POSITIONING ON STRENGTHENING PARTNERSHIP WITH MIDWIVES

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ABSTRACT

Background of this research was the still high number of infant mortality and high use of Traditional Birth Attendants (TBAs). The This study aims aimed to determine TBAs positioning on the effort of strengthening partnership with midwives. A number of pregnant women, TBAs, and midwives become became informants, through in-depth interviews and focus group discussions. The results showed positioning TBAs still needed with different roles but side by side with midwife role, used by primi and multi pregnant women before and during pregnancy, during and after birth. The requirement forrequirement for TBAs was derived from parents as a cultural heritage, whereas the requirement for midwife obtained was from formal and non- formal information. The TBAs services toward maintain family health care including include cultural events. The midwife is givingserved professional servicescare. The partnership includes clients registration, motivation, abnormalities early detection. There has had been an unwritten financing unwritten agreement. The TBAs midwife partnership needs to be strengthened through legislation and , communication to diverse audiences in order to form the right positioning.

Keywords: positioning; TBAs; midwife; partnerships.

INTRODUCTION

Maternal and Child Health (MCH) problems in Indonesia Health Demographic Survey in 2012 published by Kementerian Kesehatan Indonesia showed that Maternal Mortality Rate (MMR) was 359 per 100,000 live births and Infant Mortality Rate (IMR) was 32 per 1,000 live births. This had become a critical condition, because according to the Millennium Development Goals, the MMR was expected to decline to 102 per 100,000 live births and IMR to 23 per 1,000 live births (BKKBN, 2013).

Riset Kesehatan Dasar (2013), published by Kementerian Kesehatan Indonesia showed that there are differences between K1 visit (pregnant women receiving Ante Natal Care amounting to 81.6% and K4 (pregnant women receiving ANC from first trimester to third trimester) amounting to 70.4 %. The data showed there was a discontinuity in ANC that met the minimum standards (K4) of 12%. Basic Health Research in 2010 showed a year before the survey, only 82.2% of births was assisted by health personnel. Furthermore, just 55.4% of deliveries took place in health facilities and

43.2% of birth took place at home where 51.9% was assisted by midwives and 40.2% was assisted by Traditional Birth Attendants (TBAs) (Badan Penelitian dan Pengembangan Kementerian Kesehatan RI, 2013).

Kementrian Kesehatan Indonesia (2009), stated that current policy expected that delivery program was carried out by health professionals in health facilities. The results of the research in 97 countries stated there was a significant correlation between assisted deliveries and maternal mortality. The increase in deliveries by health workers in the region will be followed by a decrease in maternal mortality in the region (Kementerian Kesehatan Indonesia, 2009).

Banjar village is one of the villages in Banjar, West Java Province that despite its status of urban village in the city, its rural atmosphere was still thick in the culture of daily life. Record

of midwives activities at Banjar Health Center 2014 showed that the number of household in December 2018was 4,834 households and the number of pregnant women was 353 people. There are three TBAs who lived and practiced in Banjar village, the coverage of pregnant women fourth visit (K4) in December 2018 was only 79.3% of the target of 90%, with birth coverage in the health care facilities at 84.6%. The coverage of third newborn baby visit (KN3) was only 86.4%. The data still showed that 20.7% of pregnant women have not obtained the appropriate standard ANC services 4 times, whereas newborn babies not receiving services according to the standard three times was 15.4% .TBAs positioning study in Sampang (Laksono, 2014), suggested the need for services of TBAs was an integral part of Sampang people's lives. TBAs are part of the culture of health services for mothers who could not be simply replaced by modern health care policy. In the other hand, three delay model (Fibriana,2010) ,in maternal mortality cases found 26.7% of first helper was not health worker. The same study (Sari, 2016), showed that neonatal mortality correlated with antenatal and postnatal care. This prompted the researchers to evaluate the TBAs positioning in Maternal Child Health (MCH) care.

The researcher did not have health ethnographic data of Banjar village, but referred to the study mentioned above as well as a preliminary study in Banjar, and found that the presence of TBAs was still utilized by the women, especially related to maternal and child health. This compelled a study to be conducted, evaluating TBAs positioning on partnership strengthening with midwife in Banjar Village. The main problems were lack of deliveries assisted by skilled health personnel and lack of ANC coverage. The formulation of the research problem was: How TBAs positioning improved partnership strengthening with midwife in Banjar village?

The study's general objective was to determine TBAs positioning on framework of strengthening partnership with midwives to support the achievement of Maternal and Child Health (MCH) program. The specific purpose of this study was to understand the reception/acceptability picture of the TBAs services versus midwives among primi and multi pregnant women, to know the TBAs role in maternal and child health care during pre-pregnancy, pregnancy, during and after birth, and to recognize communication or promotion patterns of TBAs positioning.

The benefits of this study was the gaining of information about TBAs positioning as a partnership development decision making policy, the gaining of information about maternal and child health services needs that are expected to be considered by health policy makers, the understanding of picture reception/ acceptability picture of TBAs services versus midwives among primi and multi pregnant women which would give the material on how the pattern of service and partnership schemes to be developed.

The results of data collection can be used as an ingredient to make design of interventions (not included in the scope of this study, it can be studied as advanced research) in the form of the formulation of the strategy implementation pattern of Segmenting, Targeting and Positioning (STP) of TBAs in the context of a partnership with midwife in supporting the MCH program. The other hand to marketing strategy formulation through the marketing mix for the development of community behavior related TBAs positioning within the framework of the partnership strengthening with a midwife. The following can be used to formulate development patterns of the TBAs positioning within the framework of a partnership with midwife in supporting the MCH program.

METHOD

The stages of this study were preparation, which includes the preparation and submission of research proposals; implementation, which

include preparing research permit, data collection, processing and analysis of data, preparation of reports; and completion of reports and dissemination of results.

The study took place in Banjar village at Banjar City West Java Province, with the considerations that cultural communities were still rustic despite its status of administrative territorial city, the village still had three active TBAs, and MCH programs coverage was still low. Most TBAs studies were conducted in rural areas, although the existence and role of the TBAs were mostly in urban or semi-urban areas.

Variables observed by TBAs positioning in framework behavior of pregnant woman include attitudes, subjective norms, behavioral control, behavioral intentions, and TBAs positioning related communication behavior pattern.

The following conceptual limitations were related to the topics and scope of the study. (1) Positioning is a term in social marketing. Based on Kotler and Eduardo, positioning is a process of designing an image or value of a product or service as well as the marketing mix in order to create a certain impression in the memory of consumers to understand and appreciate what you do. In this study, the products that will be formulated in TBAs positioning is the image of the service that will be offered by TBAs, developed based on culture. (2) Indungbeurang or paraji is TBAs term in Sundanese language, the same as dukun bayi

in Bahasa Indonesia which means someone who assists birth and baby care. This means, TBAs take care of mothers giving birth and help take care of the baby. TBAs is a member of the community, commonly a woman, who gained the confidence and skill in attending births traditionally, acquired inherited learning with practice or by any other way that leads towards improvement of the skills of midwives and through health workers. TBAs is a person who is considered skilled and trustworthy by the community to help childbirth and maternal and child care according to the needs of society. (3) The midwife is a woman who graduated from midwife schools which have appropriate legislation. In performing its duties, midwives can practice independently and/or work in health facilities, is authorized to provide care, and should assist government programs. Midwives play an important role in maternal and child health programs, either as civil servants or practicing independently in the form of Midwife Private Practices care facilities. Midwives are authorized to provide maternal and child health services and attend to women's reproductive health and family planning services. (4) Partnership is an effort to build unity in order to perform an activity towards the goals based on principles of equality, openness, and mutuality. Partnership of midwife with TBAs is a form of cooperation between midwife and TBAs and is mutually beneficial with the principles of openness, equality, and trust in an attempt to save the mother and the baby by placing midwives as birth attendants and change TBAs from birth attendant to become partners in caring for according to the agreements made between the midwife and TBAs and involves all the elements existing in the communities. Strengthening partnership is an effort by the establishment for an optimal partnership, which in this study was to seek partnerships between midwives and TBAs, with role-based TBAs local culture to support the achievement of maternal and child health program (Kementerian Kesehatan Indonesia, 2009).

The following was a conceptual framework of the study. Study design was qualitative descriptive with phenomenological approach. The study's population is all of pregnant woman and TBAs as well as civil servant midwife who served in Banjar village during the study period and fulfilled the inclusion criteria. Pregnant woman selected

purposively were six people. A total three TBAs were still active on duration of the study. Civil servant midwife were three people who served in Banjar village.

Samples were selected purposively pregnant women, which is mothers newly pregnant for the first time or more. The number of samples of first time pregnant was three women and a second time pregnant or more, also three women. Determination of the number of samples was based on the saturation of the data obtained on the third sample data collection.

Data is collected through in-depth interviews of pregnant woman and *TBAs* as well as focused group discussion with midwife, conducted by researcher with university students. The research instrument was developed appropriately with theoretical construct of mother's behavior (attitudes, subjective norm, behavior control, behavior intention) related to the selection and utilization of TBAs and midwife services, and it was deepened appropriately by probing during the study.

The data analysis includes process of describing, classifying, and connecting. Stages include making field notes accompanied by audio recordings and photographs, writing a complete transcript from the audio recordings, performing data classification with data reduction, making the code as well as themes and categorization, analyzing components to determine meaningful components, presenting data into patterns, making conclusions construed in accordance to findings of study themes.

Supervision of data quality performed with standardization of interviewer that the researchers themselves by conducting in-depth reviews and focus group discussion that the techniques was formulated together. The following data processing and analysis were performed by the researchers themselves by constantly monitoring the data quality, accuracy, and completeness. Transcripts of data to be further studied with the analysis were staged together. Validity of research was tested by considering the credibility, transferability, dependability and confirmability or objectivity. Credibility of the data was tested through extending observation, increasing endurance, and triangulation in the analysis. Presentation of the results to the relevant stakeholders was an implementation of the principle of member- check and research permits need to be obtained from the agency that handles research permits at Banjar City.

RESULT AND DISCUSSION

Term of TBAs used have same meaning with term of paraji or indungbeurang. TBAs or paraji is a term society especially pregnant women. TBAs 1 stated as:

".. aya aya nu nu nyebat paraji nyebat indungbeurang ...".

According TBAs, they worked voluntarily, for Allah. TBAs do not choose clients, they provide service throughout the day, all the time. TBAs ask permit from their husband at the beginning and the others after their husband died.

Midwives were delightedly selected by community and were perceived as trustworthy and must be maintained. If the mother does not come back to be served, midwife must be introspective. Midwives often feel bored, but they do not stop the practice. If it coincided with personal activities, their duty takes priority. Based on the above findings, the midwife and TBAs declared to bear the responsibility and the mothers cared fo is important and continue to maintain the accepted trust.

Furthermore, position of TBAs utilized primi pregnant women (pregnant for the first time) and multi pregnant women (pregnant a second time or more) have different but side by side with the midwives role, that is; since pre-pregnancy, during pregnancy, during birth, and after birth (postpartum). Primi pregnant

women has intention to use the TBAs service after being offered by her mother, her mother in-law, and her husband; they take the offer and feel happy to be cared for by TBAs. Pregnant woman 2 said:

"**…** *ku mamah, ku suami, kan biasa kitu di dieu mah ka emak paraji ongkoh k amedi songkoh kitu*"

Multi pregnant women have intention to use the TBAs service based on their own choice; they feel confident and comfortable with TBAs care. Pregnant women 4 said:

" *….ah henteu kapaksa"… "muhun, da kedah sareng ema kbeurang muhun kitu" "henteu sih ari kepaksa mah ….*".

Pregnant women primi or multi, intends to use the services of midwife on the basis of their own choice and by not forced and is satisfied due to growing knowledge as counseling was also given. There were differences in maternal behavior concepts between primi and multi, where all of primi pregnant women were having influence from the others, especially family. Whereas multi pregnant women were more willing, based on a previous pregnancy experience where they feel satisfied and comfortable by TBAs care.

Primi and multi pregnant women receive TBAs services or midwives through different concepts. Maternal Child Health (MCH) services for pregnant women were conducted side by side by TBAs and midwife..

Midwife services in pre-pregnancy consist of family planning and reproductive health counseling while TBAs served pushing of uterus and nutrition advice. Care for pregnant women includes; examination of 5T (weight and height measurement, blood pressure measurement, fundus uteri height measurement, immunization of Tetanus Toxoid, provision of iron tablet) or 7 T (5 T plus test against sexually transmitted diseases - STDs, gathering speech in preparation for referral) in Integrated Health Service Post (*Posyandu*) or Midwife Private Practice by a midwife.

TBAs served activities like 4 monthly events *sawaka*7 monthly event, adjusting the womb, counseling to the midwife and posyandu. Birth was assisted by a midwife and was accompanied with stroking, massaging the mother and taking care of the baby after birth by TBAs. Post-birth services are visits at home until the whistle, weighing, immunization by a midwife, bathing the baby up to 7 days, massaging up to 40 days, the event *adus wiladah*, *sawer* and *kokocok panangan* events by TBAs based on mother request. TBAs said she never offer to do these events. Pregnant woman 4 said:

"*…. Opat sasih sareng tujuh" "ngaos paling ge" … "didieu mah sok nyandak minyak sareng hayam di ieukeun"… "kaditu sih ayamna the engke teh di kadieukeun, sampean nateh di tapelkeun ka patuangan, kana perutna" …"duka, da itu kantos tradisi, da nurut we kedah kumaha-kumahana"… "nyapanginteun sawaka tujuh sasih..".* Furthermore, pregnant woman 6 said: *"… kan ku ibu bidan lahiranana ngan aya emak paraji…"* andalso said "*...sasarengan bidan paraji* "*…"perasaana the kumaha nya,? (*Confused face*). Tenang weh muhun. Aya nu ngabantos kitu…".*

These findings suggest that midwife with TBAs could be synergic and complement each other in providing services since pre-pregnant until post-pregnant in MCH services. This broke people's mindset that TBAs would be complicated and could impede the achievement of MCH services targets. The 4th pregnant woman suggests she will use both of them in the future

"…upami ayeuna kan hamil deui, engk eupami bade ngalahirkeun, bade nyuhunkeun tulung deui ka siemak. Bade duanana.. ".

Related to the role of TBAs and midwives, research reports low exclusive breastfeeding, as well as lack of knowledge of mothers about breastfeeding (Sriningsih, 2011). Provision of early initiation of breastfeeding and exclusive breastfeeding is very important in the efforts to reduce infant mortality. It is necessary to attempt to increase the role of TBAs and midwives in the form of individual counseling about the importance of early initiation of breastfeeding and exclusive breastfeeding to pregnant women. This is to support the research that knowledge and mother attitude is significantly associated with early initiation of breastfeeding practices and exclusive breastfeeding (Raharjo, 2014), previous finding also report that knowledge of mothers about breastfeeding was significantly associated with exclusive breastfeeding (Sriningsih, 2011).

Another reason that could be considered is to make TBAs as partner of midwives in the implementation of the maternal class or as initiators and instigators of the Mother Support Group to improve exclusive breastfeeding. This is in line with the results of research that reported mothers knowledge and attitudes of exclusive breastfeeding who followed the Mother Support Program was significantly higher than mothers who do not follow the program (Ichsan, et al., 2015). TBAs need to be addressed as instigators in the Mother Support Group to improve exclusive breastfeeding to encourage mothers to give exclusive breastfeeding.

Information support for breastfeeding mothers is very important; a study suggested that information support is very important for pregnant and nursing mothers in exclusive breastfeeding. Breastfeeding mothers can obtain it from various persons, namely of those affected (significant others), health professionals, health facilities and Community Public Health Efforts. Important as well is the ease and completeness of the information to exclusive breastfeeding. Information on significant others play a more important role, because, the strong emotional bond make information more acceptable. Thus, it is important to foster a positive environment around breastfeeding so the information received is able to promote the establishment of exclusive breastfeeding (Wibowo, 2016). TBAs can be directed to become one source of information about the importance of early initiation of breastfeeding and exclusive breastfeeding.

The meaning of in-depth interview about a partnership and plan ahead on partnership, is summarized in the chart 4.

TBAs midwife partnership includes client recording, and motivating to give birth by health personnel in health facilities to increase coverage. Early detection of disorder and early referral occurred because TBAs stay relatively close to the pregnant women. TBAs

midwife partnership scheme in the future is a pattern of health care as well as financing maternal child health with the development of government policy. Their cultural and religious events, in which the TBAs were involved, could be encouraged to be filled with maternal child advice. It is important because TBAs advice tend to be heard by pregnant woman and families.

The existence and role of TBAs support was in line with research at Sampang district where TBAs play a major role during pregnancy, during birth, and especially postpartum (Laksono, 2014). Besides, these TBAs role was not only in infant and maternal care, but also in the psychological aspects such as providing advice on infant care as well as what to do and what to avoid (abstinence). So big the role of TBAs, was that any advice said by TBAs would definitely be implemented. It was have a bad impact if knowledge transferred by TBAs for patients was in contrast with medical advice. The research suggest that the presence of TBAs who was trusted by citizens need to be embraced and they need to be given additional

knowledge related to maternal and infant health, as well as a partnership with a health worker to help the success of health programs. This is also in line with a study (Anggorodi, 2009), which states that partnership is one of the solutions to reduce maternal and infant mortality problem that will mainly benefit remote areas where access to health services is very limited.

In terms of the financing, an unwritten agreement was found between the TBAs, midwife, and birth mothers. There is no evident feud between TBAs and midwife related to salary.

TBAs role tend to be related to family health care services as well as cultural and religious events. The role of the midwife is as a professional service appropriate with authority possessed by appropriate profession. Requirement for TBAs was passed down from parents as cultural heritage, supported by communication between neighbors, groups in society such as groups of pregnant women, savings and loans *(arisan)* groups, and prayer groups. In the other hand, requirement for midwife was obtained from formal and informal information and includes TBAs and midwife

communication done at monthly meetings in villages and posyandu as well as interpersonal relationship that was initiated by midwife (*ngahayap)* to make teamwork in MCH care become better.

About the role of TBAs in the future, the training for TBAs have an emphasis on its role as a motivator and source of information about family health care. Training needs to be managed with the right materials and the right way, given that TBAs generally have aged so it could be difficult to receive information that is lecture only. Although in a different context, but equally as a motivator and resources in the community, the success of the training is shown by research on the effects of training on the knowledge and actions of cadres in assessing and monitoring the growth of children (Lubis, 2015).

Similarly, in the position as leaders in the community, TBAs can contribute by motivating the community activity. Study showed that the relationship between the family support and the community leaders support the activeness of the population utilizing the non-communicable diseases integrated post (Umayana, 2015).

Young mothers stated they received information related to pregnancy at school, but inadequate. Communication in the community needs to be improved to encourage public awareness about the existence and necessity of partnership between TBAs and midwife.

The patterns were described in chart 5. Sustainable TBAs utilization depends of

cultural communication related TBAs in society, whether derived or abandoned. Partnership between TBAs and midwife was proven to run well, harmonies, side by side and accepted by society. TBAs midwife partnership policy should be strengthened through legislation as well as communication by any methods and media with various target audiences in order to ensure right positioning, harmony, and healthy partnership can be formed as well as addressing the positive changes toward the benefit of life. TBAs midwife partnership was maintained with the principle of equality, openness, and mutual benefit.

Here is the core message of TBAs positioning in order to strengthen the partnership with the midwife.

CONCLUSION

Traditional Birth Attendants (TBAs) services were still accepted by people, particularly pregnant women. TBAs were still needed by pregnant women with different roles but side by side with the role of a midwife. They provided care before pregnancy, during pregnancy, during birth and after birth (postpartum). Communication related to TBAs partnership with a midwife for Maternal

Child Health (MCH) care begin within the family, between neighbors/community groups as well as formal and informal communication. The core message of TBAs positioning in order to strengthen the partnership with the midwife is "TBAs and Midwife partnership for Family Health Care began before and during pregnant, help midwife assist birth process, accompany the children grown up for Healthy Family Welfare".

It is required to strengthen the knowledge and skills of TBAs in maternal child health care without leaving their culture and utilization to enhance the role of TBAs is maternal child health motivator. TBAs midwives partnership policy need to be strengthened through legislation including financing, as well as communication through a variety of methods and media targeting various audiences in order to make partnership positioning TBAs with midwives that is right, harmonious, and healthy can be formed.

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LEVEL OF AWARENESS AND COMPLIANCE IN DIABETES MELLITUS MANAGEMENT AMONG ADOLESCENTS DIAGNOSED WITH TYPE-1 DIABETES

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ABSTRACT

The study aimed to determine the level of awareness and to assess compliance to Diabetes management of adolescents diagnosed with Type-1 Diabetes. A descriptive correlational type of research was utilized to gather information on the level of awareness and compliance of adolescent patients to diet, exercise and drug management suffering from Type-1 diabetes mellitus. The patients (n=20) were recruited from Institute for Studies on Diabetes Foundation Incorporated, Philippines. A purposive sampling was utilized to select twenty adolescents. A researcher-made questionnaire was utilized as the main instrument in gathering data. Focus group discussion was also done to further assess patient's level of awareness and compliance to diabetes management. Results showed that patients have a moderate level of awareness and some extent of compliance to diabetes. Patients have extreme awareness in diet management and moderate awareness in exercise and drug management. In terms of compliance, patients are compliant to some extent only, while drug management has the highest level of compliance, followed by exercise and diet. There is a low correlation between level of awareness and compliance in diabetes management ($r = .32$ $p = 0.15$), indicating that the moderate level of awareness of patients to DM management is not related to their compliance. The results are limited only to the participants of the study. Further study using a larger population and different setting is recommended. Nurses taking care of adolescent patients with diabetes mellitus must understand the importance of health education. Health educations are valuable to increase level of awareness and extent of compliance of adolescent patients with Type-1 diabetes.

Key words:
Awareness to diabetes, compliance to diabetes management, diabetes, diabetes management

INTRODUCTION

The incidence of Diabetes Mellitus (DM) is rapidly increasing in a global basis according to the World Health Organization (Parker & Irons, 2006), resulting in the development of evidence-based guidelines for control and management of DM in many countries around the world. The Asia-Pacific has the largest diabetes burden in the world exemplified by a number of overweight and obesity in almost of the entire region according to Sy (2008).

In the Philippines out of its thirteen regions included in the cohort study by Gallardo (2009), six regions show the alarming growth of diabetes with Impaired Fasting Glucose (IFG) and Increased Glucose Tolerance (IGT). The Philippines warrant early aggressive intervention for diabetes mellitus prevention and management which is comprise of diet, exercise and drugs to effectively manage patients with Type-1 diabetes.

Diabetes Mellitus is a condition requiring a high incidence of self-management along with intensive medical care to reduce the incidence of its acute and chronic complications. DM is one of the chronic lifestyle diseases affecting a large sector worldwide. Figures published by World Health Organization (WHO) estimated that 150 million have DM and that this figure will double by the year 2025. Management studies for DM in first world countries may vary

largely from management strategies applied in the third world areas because of economic and manpower factors. In the Philippines, the Department of Health (DOH) included DM prevention control under the Healthy Lifestyle program. It ranks third among the dreaded lifestyle related diseases in the country today.

The study of Ardena (2010) revealed that, in the Philippines most of the patients with Type-1 diabetes do not own a glucose- meter and do not consult the doctor on a regular basis. The findings may be related to the increased untreated cases of diabetes mellitus. The knowledge, attitudes and practices of Type-1 diabetes patients were impaired and there is a need for health education to improve management of diabetes and prevent complications. In addition, according to Higuchi (2010) there is also an ineffective access to diabetes care and management in the Philippines. The application of standard treatment/management guidelines will be of help to encourage patients to seek and receive regular care.

Similar studies on knowledge regarding causes of Type-1 diabetes, its prevention and the methods to improve health were conducted. Flores (2006) explained that the tools used in diet management include the Food Exchange List (FEL), Food Composition Table (FCT) the nutritional guidelines and the food pyramid. Results of the study by Krousel-Wood (2008) also emphasized the importance of exercise management. Physical activity, t monitoring and low calorie diet can be effective in lowering the glucose and HbA1c levels. American Associations of Clinical Endocrinologists (AACE, 2007) recommended that intensive insulin therapy may reverse hypoglycemia unawareness in patients with Type-1 diabetes and can substantially prevent hypoglycemia and maintain target glycemic level.

It is of great importance to understand the possible effects of the disease on the lives of these patients which somehow affect their compliance to the management of Type-1 diabetes. Having much knowledge on the effects, anxiety and adjustments confronting these patients, it is important to empower the patients to effectively manage their own disease. For effective management and to be successful in preventing complications of this chronic and debilitating disease, patients must be equipped with necessary knowledge, skills, and attitude.

OBJECTIVE OF THE STUDY

The study was conducted to determine the level of awareness and compliance to DM management of adolescents with Type-1 diabetes. It also determined the relationship of the level of awareness and compliance to DM management.

METHOD

Research Design

The study utilized a descriptive correlational research design to describe the level of awareness and compliance to DM management of adolescents with Type-1 diabetes. Beck and Polit (2009) stated that descriptive research is focused on understanding the causes of behavior, conditions and situations and in which data gathering is done through observation, survey and interview.

Study Site

The study was conducted at the Institute for Studies on Diabetes Foundation Incorporated (ISDFI) located at Marikina City, Philippines. The foundation is known in the Philippines in delivering excellent and humane diabetes care and caters to adolescent patients with Type-1 diabetes (ISDFI, 2009). ISDFI is a private institution operated by different private and government organizations led by medical practitioners and support groups.

Participants

There is an increase incidence of diabetes in children and adolescents in the Philippines, but data on childhood diabetes is scarce (Sy,

2008). In the ISDFI only few adolescent patients with Type-1 diabetes receiving care, falls on our inclusion criteria. A purposive sampling was conducted to identify twenty adolescent patients. Participants were selected according to the inclusion and exclusion criteria set in the study. They are adolescent patients who were diagnosed of Type-1 diabetes and whose age ranges from 12 to 18. They were diagnosed of Type-1 diabetes at least six months before the conduct of this study and were regularly visiting the ISDFI for checkup at the clinic's foundation.

Ethical Clearance and Informed consent

The study has an approved ethical clearance from Centro Escolar University (CEU) Institutional Review Board (IRB) and the ISDFI IRB committee. Informed consents were sought from the parents or guardians of the twenty participants. The rights, privileges, obligations, risks and benefits of the participants were included in the orientation process. They are also oriented about the instrument and the conduct of the Focus Group Discussion (FGD) prior to data collection. Anonymity and confidentiality were observed during the conduct of research and audio-taped used in the FGD were destroyed after analysis of data.

Formulation and Administration of the Questionnaire

A researcher made questionnaire was developed based on the context of the disease process and the management of Type-1 diabetes with the specific treatment protocols and the responses of the participants to the treatments. The instrument was validated by five experts in diabetes management and had undergone reliability testing using Cronbach's alpha coefficient reliability coefficient =0.80) with ten respondents excluded in the total sample of the study. The validated questionnaire comprised the level of awareness and compliance of adolescents with Type-1 diabetes to DM management. Responses for each item were weighed using Likert's five point scale which ranges from extremely aware (5) to not aware (1) for the level of awareness; and to a very great extent of compliance (5) to a very small extent of compliance (1) for the level of compliance to Type-1 diabetes management.

A focus group discussion (FGD) was done to deepen the assessment of the level of awareness and evaluate the extent of their compliance to DM management. The FGD was conducted to validate the answers of the patients in the self-made questionnaire regarding their knowledge of the disease and compliance with diabetes management. Results of the FGD were validated from member check.

Data Analysis

The results were analyzed utilizing Statistical Package for Social Sciences (SPSS) version 19 software. Mean and SD was used to describe the level of awareness and compliance of the patients to diabetes management. Pearson correlation was utilized to determine relationship of the level of awareness to the extent of compliance of the patients to diabetes management.

RESULTS

Patients are mostly female (65% n=20); 12 years old (30% n=20) finished primary education (80% n=20); catholic (85% n=20); no vices such as smoking and drinking alcohol (95% n=20); have no physical activity (45.84% n=20); diagnosed of Type-1 diabetes for > 5 years and with history of diabetes in the family (65% n=20). Patients were regularly visiting the ISDFI for check-up at the clinic's foundation.

It can be seen in Table 1 that patients with Type-1 diabetes are extremely aware on the importance of blood sugar control, signs and definition of hyperglycemia and with diet, exercise and drug as part of diabetes management (mean= 5.0, mean= 4.85, mean=4.75, and mean= 4.60 respectively).

Patients have moderate awareness on symptoms of diabetes (mean= 4.45), signs of hypoglycemia (mean=4.30), diabetes as a lifestyle related disease (mean= 4.0), obesity and family history as risk factors for diabetes (mean=3.95), and Type-2 diabetes (3.75).

These responses were confirmed during the FGD, two of the patients mentioned the common factors that can contribute to an increase in blood sugar are lack of 56 57 exercise and eating sweet foods. Patients are aware that they can definitely control their blood sugar especially if they have high level of awareness to disease process.

"Diabetes results to lack of exercise"
"Diabetes results to eating too much sweet"
"Proper education may help us to comply with diabetes management

As reflected in Table 2 patients are extremely aware on diet management (mean=4.51) and moderately aware on exercise (mean=4.31) and drug management (mean=4.16). But, many of them during the FGD verbalized that they do not anymore prepare meal plan.

"We don't prepare meal plan"
"I have to choose my meal"
"My food has to be measured"

Adolescent patients do not need close supervision from health personnel on diet management because they are taught by the ISDFI through the conduct of series of training. Thus, on the view of the patients they do not need close supervision.

"We are taught inside the camp"
"Carbohydrate counting and serving size are included in our training"

The moderate awareness of patients to exercise is supported by only a few of them engage in regular exercise and physical activity. Although they have extreme awareness on exercise and physical activity as part of diabetes management, many of them preferred to watch television and read books. Many of the patients believed that there is a need for patients with Type-1 diabetes to be exempted in physical education classes and team sports because this has been imposed to them by people around them.

"We don't have any more time for exercise"
"I preferred reading books and watching TV"
"We are exempted from PE classes"
"My parents feared that if I'll join the PE class, I might experience hypoglycemia"

Further, the patient's compliance to diabetes management are somewhat compliant to drug (mean=3.16), exercise (mean=3.24) and diet management (mean=3.42). The low compliance on these items can be explained by the limited financial resources of the patients as explained during the FGD. Some of the patients were supported by the foundation (ISDFI) in terms of drug management; they are provided assistance in their insulin.

"Our parents support us but we have limited finances"
"We only rely on the foundation -ISDFI"

Patient's higher compliance in drugs can be attributed to their training on the types, uses and proper administration of insulin. The patient's competence in managing their insulin has been the focus of the training in ISDFI.

"ISDFI help us in managing our drugs"
"We are taught on proper insulin injection"

Patient's compliance to walking as an exercise management is also of great extent. Walking has been the usual exercise done by the patients because most of them walk when they go to school. On the other hand, aerobic and cardiovascular exercises are to some extent only because of the busy schedule of the patients in school activities. Most of them are already tired because of the too many activities in school.

"I walk going to school"
"I cannot exercise anymore after school, I'm already tired"

Although, patients are extremely aware that individualized meal plan is necessary to control diabetes, results show that they only comply with some extent. From this research results, it revealed that there was a low correlation between diabetes level of awareness and compliance to DM

management. The correlation between level of awareness and compliance was not significant ($r = .32$ $p = 0.15$) to consider in the study. It indicates that the moderate awareness of patients to diabetes management is not related to their extent of compliance.

DISCUSSION

The purpose of the study was to determine the patient's level of awareness and extent of compliance to DM management. In addition it sought to determine the relationship between awareness and compliance to DM management.

Results revealed that patients have extreme awareness on blood sugar control and signs of hyperglycemia but moderate awareness only on signs of hypoglycemia. It is of primary importance in the prevention of long-term complications the maintenance of normal glucose level and awareness in the signs and symptoms of both hyperglycemia and hypoglycemia.

In the study, patient Self-Monitoring of Blood Glucose (SMBG) control is one of the effective primary techniques patients utilized to assess the glycemic control. However, guidelines in diabetes care suggested evidence-based approaches. Effective management of blood glucose levels have been shown to reduce the risk of diabetes complications according to American Diabetes Association (ADA, 2012). A study also recommends Continuous Blood Glucose Monitoring (CBG) in conjunction with intensive insulin regimens to lower A1C in children, teens and young adults (Pick-up, Freeman & Sutton, 2011). CGM is also found effective in handling wide variability in glucose profiles before, during, and after physical exercise (Kapitza, Freeman & Sutton, 2010).

Patients were extremely aware on diet management exclusively on individual meal plan, physical activity, cardiovascular fitness and checking of blood glucose level. Although patient's awareness in exercise management were moderate; patients are extremely aware in physical activity, cardiovascular fitness and checking of blood glucose level. They also have moderate awareness on exception in physical education classes and adjustment of insulin during exercise. However, ISDFI encouraged patients to engage in household chores and play as their means of exercise and activity. These are more appropriate to their age, more manageable and of no expense on their part as adolescents. Patient's education on DM management given by the ISDFI was helpful in increasing their level of awareness. In related studies on exercise, diet and drug management, there is increased awareness in physical activity to promote fitness and a diet that includes carbohydrate counting and decreased saturated fat intake (Delahanty, 2009; Al-Agha et al., 2011, Michaliszyn, 2009). These are recommended therapeutic modalities in the management of diabetes. However, patients have only moderate awareness on carbohydrate counting and the used of decreased saturated fat intake. Health education on carbohydrate counting and used of decreased saturated fat intake may be the focus of further health education to help patients effectively managed diabetes.

Patients followed the diabetes management to some extent but shows great extent of compliance on insulin management. The ISDFI staff taught them on insulin management as revealed in the FGD. In drug management of patients with Type-1 diabetes, it is recommended by ADA (2012) to use multiple dose insulin injections (three to four injections per day of basal and prandial insulin). Continuous Insulin Infusion (CII) therapy was recommended in the study of Valla in 2010. But the use of CII is not evident in the study because in the Philippines, only few patients use CII because it is too expensive. The adolescent patients are only using multiple dose insulin injections which were monitored and supervised by their doctor's and funded by ISDFI. This shows that

the health education conducted by ISDFI is sufficient to manage insulin treatment.

The result also shows that patient have some extent of compliance in monitoring blood glucose before injecting insulin and performance of exercise or physical activity. Although, ISDFI taught them on SMBG, most of the patients do not own a glucose meter or if they have they cannot afford to buy the glucose strips needed for regular monitoring of blood glucose. This may be due to lack of financial resources and most of them are relying on the assistance of ISDFI. ADA (2012) guidelines on diabetes management recommended that in individuals taking insulin, physical activity can cause hypoglycemia. It is recommended that regular blood glucose monitoring is important to avoid hypoglycemia during and after exercise (Younk, Mikeladze, Tate and Davis, 2011). The possibility of the occurrence of hypoglycemia after exercise or physical activity on patients is high. Health education is necessary to teach the patients on effective blood glucose monitoring.

Patient's lowest compliance is on diet management. Although patients have high level of awareness in individual meal plan they only follow the management to some extent. The health education given by the ISDFI may be sufficient for these patients to comply on diet management, however patients do not anymore prepare meal plan as revealed in FGD. This may be attributed to lack of motivation, support in the family and school canteen. ADA (2012) recommended individualized meal planning and optimization of food choices to meet recommended daily allowance (RDA)/ dietary reference intake (DRI) for all micronutrients in patient with diabetes.

The study also determined the relationship of awareness to compliance to DM management. Results show that there is low correlation between the patient's awareness and compliance to DM management. Although there is correlation, it is not statistically significant. The results show no support to the study hypothesis. This may be due to limited participants included in the study.

CONCLUSION

Health education is necessary to increase the level of awareness and extent of compliance of patients in diabetes management particularly in the importance of individual meal plan and controlling blood sugar level before exercise and physical activities. Level of awareness is important but adherence to diabetes management is of higher importance to prevent long term complications of DM. Health education process that is more specific and appropriate to their needs can improve more the compliance of the patients to the three diabetes management. The nurse's role is important in educating adolescent patients with Type-1 diabetes. The results of the study may only be applicable to the participants because of low statistics significance and further study with a larger population and multiple setting is recommended to achieve adequate results.

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PROTOCOL FOR AN ONLINE RANDOMISED CONTROLLED TRIAL TO EVALUATE THE CLINICAL AND COST-EFFECTIVENESS OF A PEERSUPPORTED SELF-MANAGEMENT INTERVENTION

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ABSTRACT

Introduction: Despite clinical guidelines recommendations, many relatives of people with psychosis or bipolar disorder do not currently receive the support they need. Online information and support may offer a solution. **Methods and analysis** This single-blind, parallel, online randomised controlled trial will determine clinical and cost-effectiveness of the Relatives Education And Coping Toolkit (REACT) (including an online resource directory (RD)), compared with RD only, for relatives of people with psychosis or bipolar disorder. Both groups continue to receive treatment as usual. Independent, web-based variable, block, individual randomisation will be used across 666 relatives. Primary outcome is distress at 24 weeks (measured by General Health Questionnaire; GHQ-28) compared between groups using analysis of covariance, adjusting for baseline score. Secondary clinical outcomes are carer well-being and support. Cost-effectiveness analysis will determine cost of a significant unit change (three-point reduction) in the GHQ-28. Costs include offering and supporting the intervention in the REACT arm, relevant healthcare costs including health professional contacts medications prescribed and time off (or ability to) work for the relative. Cost utility analysis will be calculated as the marginal cost of changes in quality adjusted life years, based on EuroQol. We will explore relatives' beliefs, perceived coping and amount of REACT toolkit use as possible outcome mediators. We have embedded two methodological sub studies in the protocol to determine the relative effectiveness of a low-value (£10) versus higher value (£20) incentive, and an unconditional versus conditional incentive, on improving follow-up rates.

INTRODUCTION

Background and Rationale

Relatives of people with psychosis/bipolar disorder (BD) provide a large amount of unpaid care,[1 2] but at high personal cost in terms of distress and burden,[3–5] and increased use of healthcare services.[6] The UK Government recognises the need to support relatives in a caring role,[7] and the National Institute for Health and Care Excellence (NICE) recommends all relatives are provided with information and support, and offered structured family intervention to enhance family coping and communication.[8 9]

However, a recent national audit of Early Intervention (EI) teams for psychosis showed poor implementation: only 50% of relatives are receiving a carer-focused education and support programme; only 31% offered structured family intervention and only 12% receiving it.[10]

Reasons for poor implementation are likely to be multifaceted but likely include

limited time and resources within teams and among relatives. An online intervention to provide the necessary information and support to relatives may improve implementation. Online interventions are well established for many mental health conditions, including depression and anxiety,[11] and are being rapidly developed for psychosis[12] and BD.[13]

Such interventions are particularly suited to delivering standardised information and a platform to share ideas through online forums, but cannot replace structured family interventions. Online support is also being developed for relatives of people with other chronic health conditions,[14] and may be particularly useful for these groups due to the flexibility of use, and empathy and support from being linked to other carers.[15]

We have developed the Relatives Education And Coping Toolkit (REACT) to provide high-quality information and support in an easy and free-to-access online form to relatives of people with psychosis or BD. If effective, it could help National Health Service (NHS) Trusts meet the national access and waiting times target for early intervention services to offer carer information and support to all.[16]

Online interventions may be best evaluated using online trial methodology to enhance the external validity of the trial.[17] Advantages of online trial design include the potential to reach a greater number and range of participants more representative of the population likely to use an online intervention, to recruit more people over a shorter timeframe, to offer secure randomisation and data entry simpler protocols, and for a much cheaper trial due to fewer staff required.[18] However, retention rates can be low,[18 19] compromising internal validity of the trial. Offering incentives can improve retention rates,[20–23] but there is considerable uncertainty as to the level of incentive required and whether the incentive should be conditional or unconditional on completion.

Study Aims And Objectives

This randomised controlled trial aims to determine the clinical and cost-effectiveness of the REACT toolkit (which includes an online resource directory (RD)) and treatment as usual (TAU), compared with the RD only and TAU. This comparator was chosen to test the effect of offering REACT as an additional intervention to what relatives are currently able to access. The objectives are to determine the following:

1. impact of REACT on relatives' distress
2. impact of REACT on relatives' well-being and support
3. impact of REACT on hypothesised mediators of change, including relatives' beliefs, perceived coping and amount of use of REACT
4. costs associated with delivery and maintenance of REACT
5. incremental cost-effectiveness ratio of REACT
6. key issues for which relatives seek support.
7. We have embedded two methodological substudies. The objectives are to determine the effect on follow-uprates of the following:
8. a low-value (£10) versus higher value (£20) incentive
9. an unconditional versus conditional incentive.

The primary hypothesis is that there will be a significant difference ($p<0.05$) between the two arms of the trial in the General Health Questionnaire (GHQ-28) scores at 24-week follow-up.

METHODS

Trial Design

This is a primarily online, two-arm, pragmatic, single blind individually randomized controlled superiority trial. Participant pathway through the study is shown in

Public Patient Involvement (PPI) strategy

One of the study investigators and coauthor is a parent of someone living with psychosis and was extensively involved in the development of REACT, the RD and data collection processes. She is part of the supervisory team for the REACT supporters. We have a Relatives' Advisory Group (RAG) working primarily online to provide detailed feedback on REACT toolkit, online data collection process and recruitment strategy. They will be involved in analysis, interpretation and dissemination of the data. Our Trial Steering Committee (TSC) includes people who are relatives supporting someone with a mental health problem.

Setting: UK

This study will take place online in the UK. It is hosted by one NHS Foundation Trust, and other Trusts and clinical commissioning groups are eligible to take part as participant identification centres. Recruitment will also take place through local and national mental health charities, media, social media and Google Ads.

Participants

Inclusion criteria

1. Aged 16 or over
2. Living in the UK
3. Relative/close friend of someone with psychosis or BD
4. Currently experiencing distress due to their relative or close friend (scoring ≥3 on the GHQ-28 item 'Have you recently been feeling nervous and strung up all the time')
5. Currently help seeking (self-identified)
6. Access to an internet-enabled computer
7. Sufficient English fluency to comprehend intervention content
8. Only one relative per service user may participate to avoid a clustering effect.

Exclusion Criteria

As there is a parallel implementation study (called IMPART) of the same intervention (http://www.hra.nhs.uk/news/research-summaries/implementation-of-anonline-relatives toolkit-impart-study), relatives living in any of the six areas where it is running will be excluded (by postcode).

Recruitment

Recruitment is scheduled from April 2017 to October 2018. We will develop a social media strategy using Twitter, Facebook, Google Ads and blogging, and engage with local and national news media. We will recruit through national carer networks, MIND, Carers Trust, Rethink Mental Illness, Carers UK, SANE, Bipolar UK and NHS Choices. These organisations will all be listed in the RD in our trial. We will work closely with the Clinical Research Network to ensure

information about the study is made widely available for recruitment through NHS Trusts and general practitioner (GP) practices. We will monitor the success of these strategies by asking all potential participants at registration (postconsent) to indicate how they heard about the trial and explore differences in demographics for those entering the study via different routes. Based on previous studies our strategies to improve recruitment include a 'lead-in' period during which people can register interest in the trial during the set-up phase and be contacted directly when the trial starts,[24 25] using online recruitment strategies to target those already using the internet to seek help,[19] and paying participants.[20]

Potential participants will be directed to the study home page (www.reacttoolkit.co.uk), which provides study information. People visiting the site will provide the postcode of the person they care for to check they live in the UK, and not in one of the implementation study (IMPART) areas. Those in an IMPART area will be directed to the IMPART study site. Potential participants are directed to an online participant information sheet that details the study. Relatives are then asked to complete a short checklist to indicate whether they meet the inclusion criteria listed above. Non-eligible relatives are invited to leave their contact details if they would like to be sent content of the REACT modules at the end of the study. Eligible participants complete an online consent form and provide a valid email address. A copy of the consent form and a link to the registration process is sent by email (email validation step). The registration process requires multiple contact details including mobile phone number, and checks for overlap with other participant details. A code is sent by text message to invite the relative to access the site. The data collection system requires email address and the registration name from the user. If any of the 7% of the UK population without a mobile phone take part, or there are any concerns identified through matching registration details, we will ask for a landline and verify identity using a code delivered by telephone. We will use postcodes to check all participants are living in the UK. We will request age and gender at baseline and also at 12-week and 24-week follow-up, as a final identity check. Similar strategies have been used successfully in previous trials.[23 26]

Interventions

Participants can access the intervention site (REACT or RD) whenever they wish throughout the period of the trial (minimum of 24 weeks to last follow-up for final participant). They are advised to use the intervention according to the level of need. No changes are made to current treatment.

Development of REACT

REACT was developed with extensive input from clinicians and relatives through focus groups27 and the RAG. The content was first made available in paper/online pdf form, and feasibility and effectiveness in reducing relatives' distress were demonstrated in a randomised controlled trial.28 Based on further qualitative feedback from participants in the feasibility trial, focus groups with relatives exploring their views of online interventions and RAG input, the content has been updated and expanded to offer a comprehensive online recovery focused

toolkit for relatives of people with psychosis and/or BD. It includes online support from trained relatives (REACT supporters) via confidential direct messaging, and from other relatives through a restricted access forum moderated by the REACT supporters. Support offered by peers with a shared lived mental health experience is highly valued and can be as effective as support from health professionals,[29 30] but there is no evidence on the effectiveness of relatives' peer support. A key advantage of this design is that relatives of people who refuse to engage with services can be supported. Each of the 12 key modules contains high-quality standardised written information, videos of clinical experts or experts by experience sharing their knowledge and experiences to illustrate key points, and self-reflection tasks to ensure content is personalised to the user. All videos of relatives telling their real story were retold by actors to preserve anonymity of those involved. A summary of each module.

A 'Meet The Team' page ensures relatives are fully informed about who is delivering the content of the site. Logos for Lancaster University, Lancashire Care NHS Trust, University College London, Liverpool Clinical Trials Research Centre (CTRC) and the McPin Foundation are prominently displayed on the login page. Mytoolbox offers user a confidential space to save links to any information sources they may want to access easily in future, including specific content within the toolkit, their self-reflection tasks and external web links. A blog page offers a flexible space for additional communication with site users, which can be edited by the REACT supporters.

Support is offered through confidential direct messaging with trained relatives (REACT supporters) and peer support through a moderated online forum. Currently available national and local resources are listed in the RD. Screenshots in Figure 2 show the look and feel of the REACT intervention. The REACT supporters are available on the site Monday to Friday, 09:00–16:30, excluding bank holidays and university holiday closures. Their key role is to provide emotional support and to guide relatives to relevant parts of toolkit and/or other relevant resources as appropriate. They are also trained to moderate the forum and can hide posts or withdraw access in response to inappropriate use. They are trained and supervised by a clinical psychologist and an expert relative. Participants receiving REACT are sent reminders to visit the website after a week of inactivity. Participants can change the frequency of these reminder emails or turn them off.

RD arm

Participants allocated to RD arm log into the same website, but are only able to see the 'Meet The Team' and RD pages. At the end of the study those in RD only will be given access to the modules, without forum or direct messaging.

Outcomes

Primary outcome

The primary outcome is relatives' distress at 24 weeks assessed using GHQ-28 with Likert scoring.1–4 31 GHQ-28 showed sensitivity to change previously26 28 and has shown significant associations with important functional outcomes in the general population, including GP visits,32 absence from work,33 incapacity

benefits[34] and severe adverse health outcomes, including deaths.[35]

Secondary Outcomes

Secondary outcomes include the relatives' experience of caring assessed using the Carers' Well-Being and Support (CWS) measure36 assessed at 24 weeks, and distress (GHQ- 28) and carer experience (CWS) at 12 weeks' follow-up. CWS covers all aspects of carer's experience of caring for someone with a serious mental health problem, including relationships, roles, financial concerns, physical/ emotional health, stigma, worries about safety, satisfaction with support offered and ease of obtaining information. Cost-effectiveness.

We will determine the cost of a significant unit change (defined as three-point reduction) in GHQ-28. Cost utility analysis with fully incremental analysis will be calculated as the marginal cost of any changes in quality-adjusted life years (QALYs), using EuroQol EQ-5D 5L,37 as recommended by NICE.38 The EQ-5D-5L comprises five items covering the domains of mobility, self-care, usual activity, pain/discomfort and anxiety/depression.

Costs will include the direct costs of offering and supporting the intervention in the REACT arm, relevant healthcare care costs including health professional contacts, medications prescribed and time off (or ability to) work for the relative in both arms. An adapted version. of the Client Service Receipt Inventory (CSRI)39 will be used to collect online retrospective information about the participant's use of health and social care services, accommodation and living situations, income, employment and benefits in the preceding 6 months. We will include use of other free interventions including relatives support groups and websites, so we can accurately describe current treatment. Unpaid informal care by the relatives will be measured by asking relatives how many hours of care they provide supporting the person with mental health problems, and costing these on an hourly basis based on national mean age and gender-specific wage rates available from the Office for National Statistics.40 Days lost by relatives from work and reduced hours while at work due to the caring role will also be recorded and costed as part of the CSRI. Wherever possible, unit costs for medication and healthcare resources will be taken from national sources such as the British National Formulary41 and the Personal Social Services Research Unit (PSSRU) Costs of Health and Social Care.[42]

Mediators Of Change

To test the proposed mediators of change in relatives' outcomes, we will also include Brief Illness Perception Questionnaire,43 a 15-item Likert scale assessing beliefs about psychosis/BD with an additional single item, to assess perceived coping; and Brief COPE,[44] a 28-item measure widely used to assess coping styles. We will record all activity on the toolkit for each individual to test the relationship between use and effectiveness. Application Programming Interface data from the REACT site will be summarised for participants randomised to both intervention groups into a small number of variables (number of webpage downloads and time spent on the site). In addition to amount of use, we will explore the nature of use, including qualitative analysis of forum posts and direct messages. We will

also explore potential determinants of web use by assessing relatives' experiences of the intervention for the REACT group only at 12-week and 24-week follow-up.

Data Collection

Baseline measures including demographic information, outcomes and mediators are completed before randomisation. Demographic data collected include age, gender, ethnicity, marital status, education, employment, living arrangements (including dependents), primary diagnosis of service user, length of time in caring role, number of people caring for, relationship to person(s) with mental health problem, whether or not they live with the person(s), level and type of contact, whether or not they are receiving support from NHS services and internet access. Twelve and 24 weeks after randomisation, all participants are sent an email reminder to complete the follow-up measures. At 24 weeks, the email content will vary depending on whether participants have been randomised to either £10 or £20 reward and to the reward being conditional (ie, dependent on completion of follow-up questionnaires) or unconditional (ie, offered with the initial request for follow-up data). To maximise follow-up at the primary outcome point we will:

1. only randomise participants once baseline assessment measures are completed
2. include detailed explanations in our recruitment materials to explain to participants why data completion at follow-up is so important
3. require email, telephone and postal contact details at registration so we have multiple methods of contact for follow-up
4. send participants up to three automated email reminders at 5-day intervals, followed by text, telephone and/or postal requests
5. incentivise completion of follow-up measures by paying participants shopping voucher(s) at each time point. To increase overall acceptability and participation rates, we will inform RD participants that they will be able to access toolkit modules after the final follow-up.

Sample Size

We aim to recruit 666 relatives of people with psychosis/ BD to accurately test the primary hypothesis that there will be a significant difference ($p<0.05$) between the trialarms in GHQ-28 at 24-week follow-up. Our feasibility trial28 showed a mean difference in GHQ scores between groups at 6 months (controlling for baseline) of 6.59 units (SD 16.6 units) in favour of the REACT arm. To build a degree of protection against pilot results proving optimistic, and to accommodate adaptations to the design of the study and the intervention, we reduce our estimate of the mean difference in this trial from 6.59 to 5.0 units. We retain our estimate of SD of 16.60 from the feasibility study, consistent with other studies using this measure with relatives in EI services45 and somewhat higher than those from other mental health or dementia services.46 47 Four hundred and sixty-six participants provides 90% power to reject the null hypothesis ($p<0.05$), with effect size of 5.0 units assuming 30% dropout by 24 weeks. Although dropout was only 17% in our feasibility trial, it is historically higher in online trials.19

Internal Pilot

Our trial includes a 9-month internal pilot with the following criteria:

1. GO: 100% or above of anticipated recruitment at 9 months (333+ participants)
2. AMEND: 80%–100% of anticipated recruitment (267–333 participants); review and amend recruitment strategies
3. STOP: <80% of target for 9 months (<267 relatives); inform funders who will determine whether to stop trial.

If the SD of GHQ-28 scores at 24-week follow-up at the end of the internal pilot is higher than the estimated 16.6 units, the sample size will be recalculated and recruitment targets increased accordingly. If SD is lower, sample size will remain unchanged. If GHQ-28 retention at 24 weeks is less than 70%, recruitment target will increase to ensure 466 patients will provide sufficient 24-week primary outcome data to test the primary hypothesis.

Randomization

Eligible participants will be randomised using a 1:1 ratio to 'REACT (including RD)+TAU' versus 'RD+TAU' by the CTRC. We will use web-based variable block randomisation in which the unit of randomisation is the relative.

We will explore the effect of sociodemographic and caring-related variables; however, without convincing evidence these will have an effect, we have not stratified randomisation. A second independent randomisation is carried out at CTRC at 24-week follow-up using a randomised factorial design using the same individual block randomisation, with participants randomised to £10 or £20 reward (shopping voucher) and to the reward being conditional or unconditional on completion of measures to determine relative effectiveness and costs for each reward strategy.

Allocation Concealment And Blinding

All data are self-reports and predominantly input online by participants. Where data are collected by post, these will be recorded and inputted by the trial manager blind to allocation. Data are uploaded directly to an electronic database at the CTRC. The system only allows valid values to be entered. To prevent any bias in the conduct of the study, the chief investigator (FL), trial manager (HR) and statistician (SD and PW) will be blinded to treatment assignment. Participants, REACT supporters (LC, SF, CW), clinical supervisors (SoJ, StJ) and technical staff are unblinded. To minimise unblinding any contact with participants will be prefaced by a reminder not to disclose trial arm. If the trial manager is unblinded, then non-automated reminders and any data entry will be done by another blind team member. Chief Investigator (FL) will be unblinded only in the case of a serious adverse event deemed to be study-related to ensure the event is appropriately reported and investigated. All instances of unblinding will be recorded.

Data Management Storage And Security

All participant trial data are collected through an online system at CTRC and stored on secure servers physically located within access-controlled server rooms and backed up nightly to a separate physical location. All identifiable data are

encrypted using a 256-bit encryption algorithm. CTRC servers are subject to penetration testing audits undertaken by the University of Liverpool central IT staff. Website usage data and qualitative data from the REACT group and REACT supporter direct messages are taken from the REACT toolkit hosted on a dedicated virtual private server at Lancaster University. All communication with website users is limited to SSL-protected HTTPS protocol to protect passwords and data in transit over internet.

Data Analysis

A full statistical analysis plan is available at https:// figshare.com/account/home#/ projects/19975. If normally distributed, scores on the primary and secondary outcomes will be summarised using means and SDs for each arm separately, and will be compared between groups using analysis of covariance, adjusting for baseline score, and including all participations according to the randomisation scheme. If the scores are not normally distributed, the median and IQR will be presented for each randomised group and will be compared using the Mann-Whitney U test.

An appropriate transformation (eg, log) will be applied, and analysis of covariance will be applied to data, adjusting for baseline score. To investigate the relationship between website use and outcome, data will be recorded on baseline covariates (correlated with both website use and outcome) and relevant website use (from participants in both arms). Instrumental variable regression will be implemented to estimate impact of website use on the primary outcome (GHQ-28 at 24weeks), as well as to test whether the mediator variables actually predict change in outcome.

Mediating variables will be examined individually in this exploratory analysis. To assess the impact of the second randomisation, the number (proportion) of participants providing 24-week follow-up data will be presented and compared using the □2 test (or Fisher's exact test, if expected counts are <5). The independent impact of intervention group on retention rates will be explored by including intervention group along with value of the reward (or un/conditional nature of the reward) as an explanatory variable in logistic regression.

Cost-Effectiveness

Cost utility with a fully incremental analysis using an NHS perspective at 24weeks will be done. Effectiveness will be assessed by changes on GHQ-28. EQ-5D-5L will be used to generate QALYs. Uncertainty around cost-effectiveness estimates will be explored using cost-effectiveness planes (through generating a large number of cost–outcome combinations using bootstrapping) and cost-effectiveness acceptability curves (showing the probability of the intervention being cost-effective at various levels of willingness to pay). This allows any uncertainty in the costs or outcomes to be reflected in the results presented. The NICE Health Technology Assessment (HTA) guidance will be followed. However, costs of informal support can impact on cost-effectiveness when it constitutes a substantial part of the support provided, so we will account for this by also providing results from the wider

ocietal perspective including estimates of carers' productivity losses.

Missing Data Analyses

To minimise missing data, participants are required to complete the primary outcome measure (GHQ-28) before completing any other measures. Participants are unable to submit any questionnaire with missing fields, thus avoiding missing data within questionnaires. As much data as possible will be collected about the reasons for missing data, and these will be used to inform the handling of missing data. Participants will be invited to give reasons for not responding to the email reminders. The baseline characteristics of those who do/do not provide data will be compared to demonstrate whether missing data can be assumed to be missing at random (at least with respect to recorded baseline characteristics).

A joint modelling approach (using baseline, 12-week and 24-week outcome data) will be used to assess the impact of missing data at 24 weeks on the conclusions drawn from analysis on primary and secondary efficacy outcomes. Participants are free to withdraw consent from the trial at any time without providing a reason, although we invite them to tell us why they have withdrawn so that we can take this into consideration in future studies.

Monitoring

The trial is overseen by an independent Data Monitoring and Ethics Committee (DMEC) including Professor of Trials and Professor of Clinical Psychology, and the TSC Chaired by Professor of Clinical Psychology and including a trials statistician, trial methodologist and expert relative, both funder-appointed (National Institute for Health Research (NIHR)). The TSC will oversee trial progress, ensure that it is being carried out according to protocol and decide on continuation at the end of the internal pilot. DMEC will review unblinded data and prioritise participant safety, alerting TSC to any concerns regarding safety or other ethical issues. TSC will liaise directly with the trial sponsors (Lancaster University) who may audit the trial at any time. The number (and percentage) of patients with at least one major/minor protocol deviation will be summarized by treatment group. Eligibility protocol violations and multiple registrations per participant or per service user will also be reported.

Adverse Events

Adverse events are defined as either low risk (clear evidence of distress or concerns of risk of harm or abuse towards participants or others, but no immediate or serious threat of severe harm or risk to life) or high risk (clear evidence of immediate risk to life or child welfare). Risk can be identified through online questionnaire red flag items, posts on the REACT group, direct messages to REACT supporters and by the trial manager during email or telephone participant contact. Low-risk events will be discussed in supervision, documented and trigger a standardised email expressing concern and providing details of how to seek crisis support. If an immediate high risk is identified, either the police (immediate risk to life) or social services (risk to child) will be contacted as appropriate. Risk will be reported to the supervising clinician and

documented. The supervising clinician will discuss the risk event with the TSC Chair, who will decide if the event is related or unrelated to the study. If related, Chief Investigator and Trial Manager will be unblinded, and the sponsor, ethics committee and funding body will be notified. The number of adverse events and how they were identified will be recorded for both arms of the trial.

Reporting And Dissemination

The trial will be reported following the Consolidated Standards of Reporting Trials guideline.48 The International Committee of Medical Journal Editors guidelines on authorship will be followed. Products will be widely disseminated through journal articles, conference presentations and social media to all relevant stakeholders internationally, including service users, relatives, NHS managers and frontline clinical staff including GPs, clinical academics and the general public. A study website will provide updates and outputs from the study and links to all publications and presentations. Data will be stored at Lancaster University and the Trial Management Group, which consider applications for access to the data for further analyses.

Financial Arrangements

This trial is funded by the NIHR, HTA, 14/49/34. Contractual agreements are in place between the sponsor (Lancaster University), the CTRC (Liverpool University) and University College London, and Lancashire Care NHS Foundation Trust, which incorporates financial arrangements. The REACT trial is supported by the Comprehensive Local Research Network including research support costs. Participants are covered by

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FACTORS AFFECTING THE COMPLIANCE OF PREGNANT MOTHERS IN IMMUNIZING TT IN BPM LIA ERMALIA, BOGOR REGENCY

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ABSTRACT

In addition to the role of health workers, another factor influencing TT immunization in pregnant women is parity, where parity is the condition of a woman in relation to the birth of a living child, this is in line with the results of research by Wijayanti, Heni & Yuliaji (2014).

Knowing the relationship between parity and compliance of pregnant women in performing TT immunization at the BPM Lia Ermalia, Bogor Regency in 2019.

This type of research is a Quantitative Analytic survey with Cross Sectional research design. The method of taking the sample in this study was a total sampling technique with a total sample of 30 people. Data collection was obtained through the distribution of questionnaires in the form of a closed questionnaire.

Based on parity level of pregnant women, it is known that parity in pregnant women in BPM Midwife Lia Ermalia Amd. Keb 2019, from 30 respondents most respondents were Multipara as many as 12 respondents (40%). There are 25 (83.3%) pregnant women who are obedient in performing TT immunization at Lia Ermalia BPM. From the results of statistical tests using Kendal Tau shows the value of ρ-value = 0.003 which means ρ-value <0.05, so the decision taken is Ha accepted and Ho is rejected, which means there is a significant relationship between parity and compliance of pregnant women performing TT immunization in BPM Midwife Lia Ermalia Amd.Keb 2019.

The conclusion states that multiparous mothers are more obedient to TT immunization than primiparous mothers, because multipara mothers have more experience in previous pregnancies than primiparas who have not had previous pregnancy experiences.

Keywords *: Parity, Compliance Performing TT Immunization*

INTRODUCTION

World Health Organization (WHO) estimates that worldwide there were 216 maternal deaths per 100,000 live births due to complications of pregnancy and childbirth in 2015. The total number of maternal deaths is estimated at 303,000 worldwide, while in developing countries it reaches 239 per 100,000 live births. 20 times higher than developed countries. Developing countries account for about 90% or 302,000 of all total maternal deaths estimated to occur in 2015 (WHO, 2015).

In Indonesia, it is one of the developing countries as the highest contributor to the maternal mortality rate in the world. WHO estimates that in Indonesia there are 126 maternal deaths per 100,000 live births with a total of 6400 maternal deaths in 2015. This figure has decreased from the maternal mortality rate according to the 2013 IDHS, which was 359 per 100,000 live births (IDHS, 2015).

In West Java, in 2015, the maternal mortality rate reached 346 per 100,000 live births, in Bogor Regency the maternal mortality rate in 2015 was 50 per 100,000 live births (West Java Health Profile, 2015).

Indirect causes of high maternal and infant mortality rates include low levels of maternal knowledge and frequency of irregular antenatal care examinations. Antenatal care is a service provided to pregnant women regularly to maintain the health of the mother and baby (Mufdlilah, 2009).

Quality ANC services can increase public trust and satisfaction with the health services provided by midwives. ANC service standards according to the Ministry of Health of the Republic of Indonesia (2010) consist of weigh, blood pressure, uterine fundal height (TFU), complete TT immunization, iron tablets at least 90 tablets during pregnancy, sexually transmitted disease tests, and questions (meeting and talk) in the context of referral preparation (MOH, 2009).

Tetanus toxoidimmunization (TT)is a tetanus toxin that has been weakened and purified which is given to babies, children and mothers in an effort to provide protection againstdisease *Tetanus*. *Tetanus toxoid immunization* is also given to pregnant women from the first trimester to the third trimester and to women who are getting married

(future brides). The purpose of *Tetanus toxoid immunization* is to protect the baby's body from tetanus because antibodies are produced and passed on to babies through the placenta and reduce the risk of *tetanus* in neonates (Ida Wijayanti et al, 2013).

Data from WHO calculates the global incidence of tetanus in the world roughly ranges from 0.5 - 1 million cases and *Tetanus Neonatorum* accounts for about 50% of tetanus deaths in developing countries. The estimated global incidence of tetanus is 18 per 100,000 population per year (Ida Wijayanti et al, 2013).

According to WHO, the mortality due to *Tetanus Neonatorum* in developing countries is 135 times higher than in developed countries. In 2006, 2007 and 2008 the number of cases ofcases *Tetanus Neonatorum* among ASEAN countries, Indonesia was in second place after the Philippines with more than 100. In addition, the rate of cases and deaths due to *Tetanus Neonatorum* in Indonesia was still quite high from 2000 to 2008 (with an average CFR> 50%) (Dewi Rokhmah1 and Abu Khoiri, 2012).

cases *Tetanus Neonatorum* are found in many developing countries, especially countries with low coverage of births by health workers. In 2014, there were 84 reported cases from 15 provinces with 54 cases of death. Thus the CFR of tetanus neonatorum in 2014 was 64.3%, an increase compared to 2013 which was 53.8%.

The case description according to the risk factors for immunization status shows that 54 cases (74%) occurred in the unimmunized group. A total of 51 cases (68.9%) conducted pregnancy examinations with a doctor / midwife / nurse. According to birth attendant factors, 50 cases (68.5%) were assisted by traditional birth attendants, such as traditional birth attendants. According to the tools used for cutting the talipusat, most cases were cut with scissors, namely 46 cases (59%) (Ministry of Health, 2014).

According to the Ministry of Health, the Infant Mortality Rate (IMR) in Indonesia which is caused by *Tetanus Neonatorum* is still high. It was recorded that in 1995 there were cases with a reference to 55/1000 live birth rates. The number of cases of *Tetanus Neonatorum* in 2003 was 175 cases with a mortality rate of 56%. Handling of *Tetanus Neonatorum* is indeed not easy, so the most important thing is prevention efforts, namely hygienic Delivery Assistance supported by *Tetanus Toxoid Immunization* in pregnant women (Ida Wijayanti et al, 2013).

According to the BKKBN, the direct causes of maternal death in Indonesia are bleeding, hypertension during pregnancy, and infection. According to Riskesdas, one of the causes of infant death is *Tetanus Neonatorum*. The proportion ofinfections *Tetanus Neonatorum* will increase if the baby does not have natural immunity to *Tetanus* that is passed on through the mother. This natural immunity is obtained by the mother through *Tetanus Toxoidimmunization* (TT)with a certain minimum dose and time interval. Immunization is one solution to prevent *Tetanus Neonatorum*. It is important for pregnant women to receive immunizations to preventfrom occurring *Tetanus* in mothers and their babies. Although *Tetanus immunization* for pregnant women is considered very important as a form of tetanus prevention after delivery, as well as for babies born to the mother, the use of TT immunization in pregnant women is considered to be less than optimal (Pratiwi C, 2013).

According to the Directorate General of Disease Control (Ditjen PP) and Environmental Health (PL) Although theimmunization program *Tetanus* has been implemented, the immunization coverage is still far from expectations. The factors that influence the low coverage of TT immunization are the lack of health promotion activities and the low level of public knowledge about TT immunization, even though the immunization can be obtained free of charge at health care facilities (Nur NK, 2010).

Apart from the role of health workers, another factor that influences giving TT immunization to pregnant women is parity, where parity is the condition of a woman in relation to the birth of a living child, this is in line with the results of research by Wijayanti, Heni & Yuliaji (2014), which states that there is a significant relationship between parity and the completeness of the *tetanus toxoid immunization*. The results showed that the high parity group knew more about the benefits of *TetanusImmunization Toxoid* related to their previous experience of having several times pregnancy and childbirth, while the low parity group did not understand the importance of *Tetanus Toxoid Immunization*.

Based on the results of the research, the factors related to the completeness of TT immunization in pregnant women at the Tabongo Health Center, Gorontalo District, it can be concluded that there is no relationship between education and the completeness of TT immunization in pregnant women, most of them have low education, which is 58.3%, there is a relationship Between parity and completeness of TT immunization in pregnant women, most of them have multiparity parity of 55.6% and there is a relationship between knowledge and completeness of TT immunization in pregnant women, most of them have poor knowledge, namely 52.8% (Puskesmas Tabongo. 2012).

The tetanus vaccine is a tetanus toxin that has been weakened and then purified.immunization *Tetanus toxoid* (TT)means giving pregnant women and their babies immunity against tetanus. According to the WHO recommendation, giving TT immunization if a mother who has never been given Tetanus immunization must get at least two (injections) during pregnancy (first at the antenatal visit and second at four weeks later). The interval for giving TT 1 immunization with TT 2 is at least 4 weeks (Anggrita et al, 2015).

TT immunization is an injection of the tetanus vaccine to increase immunity as a preventive measure against *Tetanus infection*. The TT vaccine is a liquid vaccine containing an attenuated tetanus toxin. Vaccine packaging in vials. 1 vial of TT vaccine contains 10 doses (Prawiroharjo, 2014).

Factors related to giving TT immunization to pregnant women are knowledge, education, age, attitude, parity, level of income (Green and Kreuter (in Notoatmodjo, 2010)).

Side effects of TT immunization include mild symptoms such as pain, redness and swelling at the injection site. These side effects last 1-2 days, they will heal on their own and no action or treatment is required. Tetanus toxoid immunization is a very safe and safe antigen for pregnant women. There is no danger to the fetus if pregnant women get TT immunization. For pregnant women who received TT immunization, there was no difference in the risk of congenital defects or abortion with those who did not get immunization (MOH, 2009).

According to the Indonesian Ministry of Health (2009), places of service to get TT immunization include health centers, auxiliary health centers, hospitals, maternity hospitals, polindes, posyandu, private hospitals and practicing doctors.

The word parity comes from the Latin pario, which means to produce. In general, parity is defined as the state of giving birth to children, whether alive or dead, but not abortion, regardless of the number of children. Parity is the number of live births a woman has (BKKBN, 2009).

Based on the number, the parity of a woman can be divided into: Primipara, namely women who have given birth once, Multipara, namely women who have given birth two to four times, Grandemultipara, namely women who have given birth five times or more.

Immunization compliance is the extent to which the patient completes immunization according to a predetermined time interval, in accordance with the directions and recommendations of health workers (WHO, 2011).

WHO (2003) in Prihandana (2012) defines adherence as a patient's ability to behave to take medication, follow a diet, and make lifestyle changes, in accordance with directions and recommendations from health workers. Adherence to a health program is an observable behavior that can be measured indirectly through consequences or outcomes related to behavior.

Yegenoglu et al. (2009) in Pertiwi et al. (2011), explained that patient compliance refers to the willingness and ability of an individual to follow medical advice, take medication as prescribed, adhere to a medical consultation schedule, and complete medical follow-up according to recommendations.

Factors that influence the level of compliance are education, attitudes, values, beliefs, perceptions, parity (Notoatmodjo, 2010).

Pregnancy is a continuous link consisting of ovulation (maturation of cells) and the meeting of the ovum (egg) and spermatozoa (sperm), fertilization occurs and the growth of the zygote then oxidizes (implants) the uterus and the formation of the placenta and the final stage is the growth and development of the conception. until term) (Manuaba, et al., 2012).

According to the BKKBN (National Population and Family Planning Board) pregnancy is a process that begins with the release of a mature egg in the oviduct which then meets the sperm, then they combine to form a cell that will grow.

Pregnancy is a process that occurs between the combination of sperm and ovum cells resulting in conception until the birth of the fetus, the length of normal pregnancy is 280 days or 40 weeks, calculated from the first menstruation last menstruation (HPHT) (Wiknjosastro 2009).

Siswosudarmo (2009) states that the definite signs of pregnancy are as follows: Fetal heart rate (FHR), can be heard with a laenec stethoscope or with an ultrasonic stethoscope (doplller), palpation, visible and palpable movement of the fetus, palpable parts of the fetus, X-ray, so that it can be You can see a picture of the fetal bones, Ultrasonography (USG), Laboratory tests, namely coagulation inhibition tests that aim to detect the presence of HCG in the urine.

The purpose of this study was to determine the relationship between *parity* and compliance with pregnant women in carrying out TT immunization at BPM Lia Ermalia Bogor Regency in 2019.

RESEARCH METHOD

The research design was the result of a stage of decisions made by researchers related to how research could be applied. This type of research issurvey research *analytical quantitative*.

The design in this study is *cross sectional*, where the cause or risk and effect variables or cases that occur on the research object are measured or collected at the same time.Studies are *Cross Sectional* used to

examine a referent population that is carried out over a certain time period to determine health problems or risk factors that can cause health problems in the community (Notoatmodjo, 2012).

This research was carried out at BPM Bd. Lia Ermalia, Leuwiliang District, Bogor Regency. The population in this study were 30 pregnant women in the working area of BPM Bd. Lia Ermalia. By taking total sampling, the sampling technique was taken by taking all members of the population as a sample so that the sample in this study amounted to 30 people.

The variables of this study consisted of parity and compliance of pregnant women in carrying out TT immunization. Data processing and data analysis and data analysis using the computer program SPSS *for windows* series 17. The analysis consisted of univariate and bivariate analysis, where bivariate analysis analyzed the relationship between parity and compliance with pregnant women in carrying out TT immunization.

RESEARCH RESULTS

This research was conducted on August 28 - September 1 at BPM Lia Ermalia. Univariate analysis is presented in the form of a frequency distribution which includes *parity* of pregnant women and compliance of pregnant women in carrying out TT immunization at BPM Lia Ermalia.

Bivariate analysis to determine the relationship between *parity* and compliance withBogor district in 2019.

pregnant women doing TT immunization at BPM LiaTable 4.1 Characteristics of the age of pregnant women who immunized TT immunization at BPM Lia Ermalia, Ermalia in 2019

No	Age	Frequency	Percentage%
1	<25 years	12	40 %
2	> 35 years	18	60%
	Total	30	100% The

table above shows the results of the age characteristics of pregnant women who did TT immunization at BPM Midwife Lia Ermalia Amd. Keb In 2019, most of the 30 respondents who were over 35 years old were 18 (60%) respondents.

Table 4.2
Occupational characteristics of pregnant women who receive TT immunization at BPM Lia Ermalia Amd. Keb Tahun 2019

No	Occupation	Frequency	Percentage%
1	Not Working	16	53.3%
2	Working	14	46.7%
	Total	30	100% The

table above shows the results of the job characteristics of pregnant women. The characteristics of the work of pregnant women who carry out TT immunization at BPM Lia Ermalia Amd. Keb Tahun 2019 of 30 respondents most of the respondents who do not work there are 16 (53.3%) respondents.

Table 4.3
Characteristics of gestational age of pregnant women who receive TT immunization at BPM Lia Ermalia Amd. Keb Tahun 2019

No	Age of Pregnancy	Frequency	Percentage%
1	Trimester II	14	46.7%
2	Trimester III	16	53.3%
	Total	30	100% The

table above shows the characteristics of the gestational age of pregnant women who carry out TT immunization at BPM Lia Ermalia Amd. Keb Year 2019 of 30 respondents, most of the

respondents whose gestational age was in the third trimester, there were 16 (53.3%) respondents.

Table 4.4
Distribution offrequency *parity* among pregnant women in
BPM Lia Ermalia Amd. Keb Tahun 2019

No	Parity	Frequency	Percentage%
1	Primipara	9	30%
2	Multipara	12	40%
3	Grandemultipara	9	30%
	Total	30	100%

Based on table 4.4 Distribution offrequency *parity* among pregnant women at BPM Midwife Lia Ermalia Amd. Keb Year 2019, most of the 30 respondents who were *Multipara* were 12 respondents (40%).

Table 4.5
Distribution of the frequency of compliance of pregnant women in carrying out TT immunization at BPM Lia Ermalia
Amd. Keb Tahun 2019

No	Compliance with TT Immunization	Frequency	Percentage%
1	Not Compliant	5	16.7%
2	Compliant	25	83.3%
	Total	30	100%

Based on table 4.5 Distribution of compliance frequency of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd. Keb In 2019, of the 30 respondents, there were 25 (83.3%) pregnant women who complied with the TT immunization at BPM Lia Ermalia.

Table 4.6
Relationship between *Parity* and Compliance of Pregnant Women Performing TT Immunization at BPM Midwife Iia Ermalia Amd.Keb in 2019.

Parity of	Compliance with TT Immunization				Total		*P-value*
	Compliant		Disobedient				
	N	%	N	%	N	%	
Primipara	4	13.3%	5	16.7%	9	30%	0.003
Multipara	12	40%	0	0%	12	40%	
Grandemultipara	9	30%	0	0%	9	30%	
Total	25	83.3%	5	16.7%	30	100%	

Based on table 4.6 Relationship between Parity and Compliance with Pregnant Women Performing TT Immunization At BPM Lia Ermalia in 2019, of the 30 respondents there were 12 respondents (40%) ofparity *Multipara* who obeyed the TT immunization at BPM Lia Ermalia.

From the results of statistical tests using *Kendal Tau, it* shows the value of *ρ-value* = 0.003 which means *ρ-value* <0.05, so that the decision taken is that Ha is accepted and Ho is rejected, which means that there is a significant relationship between *parity* and compliance of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd.Keb 2019.

DISCUSSION

a. Parity

Based on the results of the study showed that *parity* in pregnant women in BPM Midwife Lia Ermalia Amd. Keb Year 2019, most of the 30 respondents who were *Multipara* were 12 respondents (40%).

The word parity comes from the Latin pario, which means to produce. In general, parity is defined as the state of giving birth to children, whether alive or dead, but not abortion, regardless of the number of children. Parity is the number of live births a woman has (BKKBN, 2009).

Based on the amount, the parity of a woman can be divided into: *Primipara,* namely women who have given birth once,, *Multipara* namely women who have given birth two to four times,, *Grandemultipara* namely women who have given birth five times or more.

Apart from the role of health workers, another factor that influences giving TT immunization to pregnant women is parity, where parity is the condition of a woman in relation to the birth of a living child, this is in line with the results of research by Wijayanti, Heni & Yuliaji (2014), which states that there is a significant relationship between parity and the completeness of the *tetanus toxoid immunization*. The results showed that the high parity group knew more about the benefits of *Tetanus Toxoid Immunization* related to their previous experience of having several times pregnancy and childbirth, while the low parity group did not understand the importance of *Tetanus Toxoid Immunization*.

The results of this study are consistent with research by Cindi Pratiwi (2014). Factors Associated with Completeness of Tetanus Toxoid Immunization in Pregnant Women at Tabongo Health Center, Tabongo District,District Gorontalo. 2014, the results showed that the completeness of TT immunization at Tabongo Health Center, Tabongo District, Gorontalo District. The results showed that parity of pregnant women was mostly in the multiparity of 20 people (55.6%).

In theory, mothers with first pregnancies with mothers with second pregnancies or later will have different concerns during pregnancy. Mothers with their first pregnancies will experience a maturity crisis that can be stressful but these women will be better prepared to provide care and take on more responsibilities. It is different for mothers with second or more pregnancies, these mothers will tend to pay less attention to pregnancy or vice versa.

From the theory and research results above, it shows that Multipara pregnant women have more complete immunizations because they already have previous experiences during pregnancy. From the theory and research results above, it shows that pregnant women who are> 35 years old definitely have more parity than Multipara than pregnant women who have <25 years old definitely have Primipara parity.

b. Compliance of pregnant women with TT immunization.

Based on the results of the study, the frequency of compliance of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd. Keb In 2019, of the 30 respondents,

there were 25 (83.3%) pregnant women who complied with the TT immunization at BPM Lia Ermalia.

According to Sacket in Niven (2010), adherence is the extent to which a patient's behavior is in accordance with the provisions given by a health professional.

Immunization compliance is the extent to which the patient completes immunization according to a predetermined time interval, in accordance with the directions and recommendations of health workers (WHO, 2011).

Manuaba, et al (2012) provide a different definition of pregnancy. Pregnancy is a continuous link consisting of ovulation (maturation of cells) and the meeting of the ovum (egg) and spermatozoa (sperm), fertilization occurs and the growth of the zygote then oxidizes (implants) the uterus and the formation of the placenta and the final stage is the growth and development of the conception. until term.

According to Green and Kreuter (in Notoatmodjo, 2010), the factors that influence a person's compliance are*predisposing factors*, namely the level of knowledge, attitudes, values, beliefs, perceptions and parity,*enabling factors*, namely the means and infrastructure, and supporting factors (*reinforcing factor*), namely motivation.

The results of this study are in line with the research of Juliani Samiatuti (2016). Factors Affecting Compliance of Pregnant Women in Implementing Tetanus Toxoid (TT) Immunization at Puskesmas Kasihan II Bantul. This research is astudy *descriptive analytical* with adesign *cross sectional*. The study involved 20 respondents who were drawn by thetechnique *total sampling*. The research data was taken by using a questionnaire. Cross tabulation of the relationship between compliance TT as the dependent variable with independent variables were analyzed with correlation of *Kendall Tau* analysis *Tau Kendall* correlationshowed TT compliance at 95% significance level obtained value of p = 0.032.

From the theory and research above, it shows that pregnant women who do not work will be more obedient to TT immunization because pregnant women who do not work have a lot of free time to do TT immunization compared to pregnant women who work will have many activities and certainly not necessarily do TT immunization.

c. Relationship between parity and compliance of pregnant women with TT immunization.between parity and compliance with pregnant women in carrying out TT immunization

Relationshipat BPM Lia Ermalia in 2019, of the 30 respondents, 12 respondents (40%) parity *Multipara* obediently administered TT immunization at BPM Lia Ermalia.

From the results of statistical tests using *Kendal Tau, it* shows the value of *ρ-value* = 0.003 which means *ρ-value* <0.05, so that the decision taken is that Ha is accepted and Ho is rejected, which means that there is a significant relationship between *parity* and compliance of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd.Keb 2019.

The tetanus vaccine is a tetanus germ toxin that has been weakened and then purified.immunization *Tetanus toxoid* (TT)means giving pregnant women and their babies immunity against tetanus. According to the WHO recommendation, giving TT immunization if a mother who has never been given Tetanus immunization must get at least two (injections) during pregnancy (first at the antenatal visit and second at four weeks later). The interval for giving TT 1 immunization with TT 2 is at least 4 weeks (Anggrita et al, 2015).

Meanwhile, according to Triratnasari (2017), Parity is the number of children in one family. Mothers who have more than one child have a better experience with mothers who have just gotten pregnant with their first child, because the experience they have is better than their previous pregnancy experience, so their knowledge is broader and their mental state is better.

WHO (2003) in Prihandana (2012) defines adherence as a patient's ability to behave to take medication, follow a diet, and make lifestyle changes, in accordance with directions and recommendations from health workers. Adherence to a health program is an observable behavior that can be measured indirectly through consequences or outcomes related to behavior.

University of North Sumatra Pratiwi's (2014) research results indicate that there is a significant relationship between parity and completeness of tetanus toxoid immunization. The results showed that most of the parity of pregnant women was in the multiparity parity, this was because the multiparous parity group knew more about the benefits of tetanus toxoid immunization related to their previous experience of having several pregnancies and childbirth, while the lowest parity was found in primiparous parity because they had not know the importance of tetanus toxoid immunization.

Based on the results of research conducted by Wijayanti, Heni & Yuliaji (2013), it is stated that there is a significant relationship between parity and completeness of the Tetanus toxoid immunization. The results showed that the parity group knew more about the benefits of tetanus toxoid immunization related to

their previous experience of having several pregnancies and childbirth, while the low parity

group did not understand the importance of Tetanus toxoid immunization.

The results of this study are in line with Adelfin Lapangoyu's (2016) research on Tetanus Toxoid Immunization Completeness Factors in Pregnant Women in the Work Area of the Tagolu Health Center, Poso Regency. The results of the Chi-Square Test with Continuity Correctionb showed a value of p = 0.005 <0.05, which means that there is a significant relationship. meaningful between predisposition (education, knowledge, age, parity) and completeness of TT immunization in pregnant women in the working area of the Tagolu Public Health Center, Poso Regency.

From the theory and research above, it is stated that pregnant women who are> 35 years of age who do not work must have more parity than Multipara and at the gestational age pregnant women who have entered the third trimester will be more obedient to carry out TT immunization in preparation for later delivery.

CONCLUSION

1. It is known that the distribution offrequency *parity* in pregnant women at BPM Midwife Lia Ermalia Amd. Keb Year 2019, most of the 30 respondents who were *Multipara* were 12 respondents (40%).
2. It is known that the frequency distribution of compliance of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd. Keb In 2019, of the 30 respondents, there were 25 (83.3%) pregnant women who complied with the TT immunization at BPM Lia Ermalia.
3. It is known that the relationship between parity and compliance of pregnant women in carrying out TT immunization at BPM Lia Ermalia in 2019, of the 30

respondents, there were 12 respondents (40%) ofparity *Multipara* who complied with TT immunization at BPM Lia Ermalia. From the results of statistical tests using *Kendal Tau, it* shows the value of *ρ-value* = 0.003 which means *ρ-value* <0.05, so that the decision taken is that Ha is accepted and Ho is rejected, which means that there is a significant relationship between *parity* and compliance of pregnant women in carrying out TT immunization at BPM Midwife Lia Ermalia Amd.Keb 2019.

SUGGESTIONS

1. for the Wijaya Husada AKBID Educational Institution, Bogor.

   After reading the results of this study, it is hoped that students can increase their knowledge by reading the results of this study, especially about ANC compliance with pregnant women in TT immunization, so that they can broaden their horizons and add knowledge. new.
2. For BPM Midwife Lia Ermalia Midwife Lia Ermalia is

   expected to be able to provide and improve the quality of health services, especially in the TT immunization program for pregnant women.

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THE RELATIONSHIP BETWEEN PREGNANT WOMEN WEIGHT GAIN AND NEW BIRTH WEIGHT AT PUSKESMAS BOGOR TIMUR

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Abstract

Normal weight gain for pregnant women according to BMI iskg.[1] Many factors affect the weight of the newborn, including the sex of the baby, the state of the placenta, the mother's age, the mother's activity, smoking habits, birth spacing, height, maternal weight, and nutrition. This study aims to determine the relationship between weight gain for pregnant women and newborn weight at the East Bogor Community Health Center in 2019. This study aims to determine the relationship between weight gain for pregnant women and new birth weight at the East Bogor Community Health Center in 2019. This

type of research This uses total sampling with a sample size of 50 respondents. The analysis used is the *Spearman*. Respondents in this study were mothers who had babies, when the study was conducted in November 2019, which was conducted at the East Bogor Community Health Center.

From the results and discussion of research conducted at the East Bogor Health Center in 2019, regarding the Relationship between Pregnant Women Weight Gain and Newborn Weight, based on table 4.3 of 50 respondents, the weight gain of pregnant women is less and the weight of newborns is more than 13 respondents. (26.0%). The analysis results obtained *p value* 0.043 where the *p value is* 0.043 <(0.005), so Ho is rejected and Ha is accepted, which means that there is a relationship between maternal weight gain and weight for newborns at the Bogor Timur Health Center in 2019.

It is hoped that it can provide reference material and reading material. maternity nursing courses and knowledge about weight gain for pregnant women, as well as a reference in carrying out further research on weight gain in newborns. It is hoped that this researcher can be used as a guide to be able to provide knowledge about the health of increasing the weight of pregnant women with new birth weight at the Puskesmas Bogor Timur.

Keywords : Increased weight of pregnant women, new birth weight

INTRODUCTION

The process of pregnancy is not something pathological, but physiological in all women. Thus, it is important to know the physiological changes that occur during pregnancy, such as increased body weight due to the enlarged organs of the pregnant woman's organs, namely the breasts and uterus, as well as the growth of the fetus from time to time. Based on recommendations from the World Health Organization (WHO) according to guidelines issued in 2009, the increase in body weight during pregnancy is adjusted to the ratio of weight and height of pregnant women, or based on Body Mass Index (BMI) before pregnancy or at the time of visit. first the patient to a doctor or health service.[1]

Assessment of body weight based on age according to WHO with the NCHS *(National Center for Health Statistics) standard*, which uses the following percentiles: percentile less than or equal to three is categorized as malnutrition. The WHO assessment of body weight based on height uses a percentage of the median as follows: between 89–100% is said to be moderately malnourished and less than 80% is said to be acutely malnourished *(wasting).* Weight assessment based on height according to the NCHS standard, using the following percentile, 75–25% percentile is said to be normal, 10% percentile is said to be moderately malnourished, and less than the percentile is said to be severely malnourished.[1]

During the growth period, the baby's body weight is divided into two, namely 0–6 months and ages 6–12 months. And aged 0–6 months of growth, body weight will increase every week around 140–200 grams and his body weight will be twice the birth weight at the end of the 6th month. Meanwhile, at the age of 6-12 months there is an increase every week of about 25-40 grams and at the end of the 12th month there will be a threefold increase in birth weight. During playtime, there is an increase in body weight of about four times the birth weight at the age of approximately 2.5 years and weight gain each year is 2–3 kg. in the pre-school and school period there will be weight gain each year approximately 2–3 years.[2]

Weight gain for each pregnant woman is not the same. This depends on body mass index (BMI) and body weight before pregnancy. BMI is obtained by dividing your weight in kilograms by your height in meters squared.[2]

The normal weight gain for pregnant women according to BMI is 11-15 kg.[1] Many factors affect the weight of the newborn, including the sex of the baby, the state of the placenta, the mother's age, maternal activity, smoking habits, birth spacing, height, maternal weight and nutrition, but the relationship between the mother's nutritional status and weight born in child survival, which has consistently shown that birth weight is the size of the mother's body, namely the mother's height and weight before pregnancy. [2]

The baby's body weight is weighed by baby scales, while in children with standing scales. Before weighing, first check whether the appliance is in balance (The needle indicates zero). Baby is weighed in position lying on your back or sitting without clothes, while the child is weighed in a standing position without shoes with minimal clothing. [2]

Toddlers to be weighed should wear clothes as light as possible. Clothes, shoes and hats should be removed. If this is not possible, the weighing result must be corrected by the weight of the toddler's fabric which is also weighted.

When things go this forces children under five do not want to be weighed without their mother or accompanying parents, the weighing can be done by using the scale step on the first way, weigh toddler and his mother. Second, just weigh the mother. Third, the results the scale is calculated by subtracting the weight of the mother and child.[3]

Researchers found that the increase in body weight of pregnant women in Indonesia has not been scientifically recorded, including its relationship to several important labor outcomes, such as length of delivery, the need for cesarean section procedures, birth weight of babies, and so on. Therefore, researchers carried out a study with the aim of providing an overview of the distribution of increased pregnancy weight, the distribution of length of labor, and its relationship to the Indonesian population. [2]

Being overweight or underweight in pregnant women can hinder fetal development. The higher the weight of the pregnant woman, the more likely the fetus will experience macrosomia. If the mother's weight is low during pregnancy, it will cause fetal growth and development to experience obstacles so that it becomes *Intrauterine growth retardation*, preterm labor and low birth weight for the gestational period.[2]

Meanwhile, a preliminary study at the East Bogor Community Health Center regarding the relationship between nutritional status and weight gain during pregnancy with the weight and length of the baby born, shows that 18% of pregnant women have a pre-pregnant weight less than 40 kg and the average pregnancy weight gain is less. than 9 kg. The comparison of the estimated weight gain with the amount of weight gain required to compensate for the pre-pregnancy weight is low, only 9% of pregnant women are adequate, and this adequacy is given from mothers whose pre-pregnancy weight is sufficient. Only 3% of women weigh less than 45 kg.[4]

RESEARCH METHODS

This type of research is a quantitative descriptive study, in which the research activity of the researcher only takes pictures of what happens to the object or area under study, then describes what happened in the form of a straightforward research report, as it is. The term descriptive comes from the English term "*to describe*" which means to describe or describe something, such as circumstances, conditions or other things. This method is called a quantitative method, because the research data is in the form of numbers and the analysis uses statistics.[5] The

design of this study used aapproach *cross sectional*, which is a study to study the dynamics of the correlation between factors and effects, by means of an approach, collecting data at once. This means that research subjects are

observed only once and measurements are made of the character status or subject variables at the time of examination.[5]

This research has been conducted at the Puskesmas Bogor Timur. The population in this study were mothers who had babies with 50 people.

The variables of this study consisted of the increase in body weight of pregnant women with new birth weight.

Data processing and data analysis used computerization with the SPSS version 17 program.The analysis consisted of univariate and bivariate analysis, where the bivariate analysis used thestatistical test *Spearman* to analyze the Relationship between Pregnant Women Weight Gain and Newborn Weight at Puskesmas Bogor Timur in 2019.

In This research is the location that is determined to conduct research, namely at the East Bgor Community Health Center. Retrieval of data in this study using a *total sampling technique* with 50 respondents who have babies. Research data collection was conducted on November 5, 2019. Data was collected by researchers.

RESEARCH RESULTS

Table 1 Frequency Distribution of Maternal Weight Gain in Puskesmas Bogor Timur

o	**ncrease in Maternal**	**requenc y**	**ercentag e%**
	eight LossNormal Maternal Weight	2	24.0%
	nderweight Maternal Weight	6	32.0%
	aternal Body Weight Over	2	44, 0%
	otal	0	100.0%

Source: SPSS Version 17

Based on table 1 of 50 respondents, the incidence of weight gain for pregnant women at the East Bogor Community Health Center in 2019 showed that 22 respondents experienced an increase in the weight of their pregnant women (44.0%).

Table 2 Frequency Distribution of Newborn Baby Weight Gain at Puskesmas Bogor Timur

o	**ncrease in Maternal**	**requenc y**	**ercentag e%**
	eightNormal Maternal Weight	2	24.0%
	nderweight Maternal Weight	6	32.0%
	aternal Weight	2	Overwei ght44.0 %
	otal	0	100.0%

Based on table 2 of 50 respondents, the incidence of weight gain for pregnant women at the East Bogor Community Health Center in 2019 shows that 22 respondents (44.0%) experienced an increase in the weight of pregnant women.

Table 3 Relationship Improved Pregnancy Weight With Weight Newborns in 2019Health Center East Bogor

mproved BBMaternal	**BB ImprovedNewborn**						**alue**
	ormal	%	ess	%	ore	%	otal	%	
ormal		.0%		, 0%		4.0%	2	4.0%	.043
ess	1	.0%		.0%	3	6.0%	6	2.0%	
more	6	2.0%	0	0.0%		2.0 %	2	4.0%	
otal	10	0.0%	4	8.0%	6	2.0%	0	00.0%	

Source: SPSS Version 17

Based on table 3 of 50 respondents the increase in weight of pregnant women is less and the weight of new babies there were 13 respondents (26.0%) born over. The results of the analysis obtainedgain for *p value* 0.043 where the *p value is* 0.043 <(0.005), then Ho is rejected and Ha is accepted, which means that there is a relationship between weightpregnant women and new birth weight at the Bogor Timur Health Center in 2019.

DISCUSSION

a. Increasing Weight of Pregnant Women

Based on table 1 of 50 respondents, the incidence of weight gain for pregnant women at the East Bogor Community Health Center in 2019 shows that 22 respondents (44.0%) experienced an increase in the weight of pregnant women.

The results of this study are in line with research conducted by Sri Wahyyuni that mothers who have an increased risk of body weight are 63.3% and normal is 36.7%. There were LBW of 0%, BBLN of 96.7% and Big Babies of 3.3%. The conclusion of this study is that there is a relationship between increased body weight of pregnant

women and newborn body weight with a value of p = 0.040 (p> 0.05).

Weight gain during pregnancy is an indicator of plasma volume expansion and positive calorie balance and represents roughly the adequacy of a diet. In terms of weight gain during pregnancy, it will be described based on the pattern of weight gain, components of weight gain and recommended weight gain. [2]

Factors that affect weight gain of pregnant women. The weight gain component consists of water, approximately 62% of the total weight gain, 30% fat and 8% protein. The extracellular fluid and blood volume increase —13 and 10%, respectively, of the total weight gain. Normal gain for a healthy mother is around 11-15 kg. This weight gain is only about 25% - 27% of the first total, the material is the weight of the fetus, 5% placenta and 6% amionic fluid, the rest is pregnancy products that occur in the mother's body, namely 10% expansion of blood volume, 11% growth of the uterus and breasts, 13% increase in extra cell fluid and 25% - 27% increase in body fat. [4]

Pre-pregnancy weight can be used singly to predict risk of pregnancy outcome, and can be combined with height, both as BMI and as height / weight. However, if used singly, body weight is still the best indicator. Pre-pregnant BMI represents a genetic and nutritional component. A low pre-pregnancy BMI is still considered a sign of minimal tissue supply of nutrients. Therefore, prematurity BMI is considered an increased risk as a labor outcome, namely prematurity and IUGR.[2]

Protein requirements during pregnancy are based on the reference needs of the nonpregnant woman plus the extra amounts needed for growth. The easiest way to determine how much extra protein is needed each day to support the synthesis of new tissue consisting of the product of conception and the mother's body based on the average gestational period. Approximately 925 grams of protein is stored in the normal weight of the fetus and other tissues. If this is divided by 280 days of pregnancy, an average of 3.3 grams of protein should be added to the normal daily requirement. [4]

Based on the theory and results of research that researchers have conducted at the East Bogor Community Health Center with 50 respondents, that some respondents have underweight, namely as many as 22 respondents (44.0%), so it can be concluded that the incidence of increased body weight of pregnant women in East Bogor Community Health Center 2019 is influenced by the increase in weight of newborns.

b. Increase in weight for newborns

Based on table 4.2 of 50 respondents, the increase in weight for

newborns at the East Bogor Health Center in 2019 obtained data that experienced an increase in weight for newborns as many as 26 respondents (52.0%).

The results of this study are in line with research conducted by Sunanita (2015) entitled The Relationship between Pregnant Women Weight Gain and Newborn Weight Loss at Bps Hj. Hartini, Widang Subdistrict, Tuban Regency, most of the 30 respondents had a weight gain of pregnant women <12.5 kg and gave birth to babies with birth weights between 2500 - 4000 grams of 21 people (91.3)

Body weight is the most important anthropometric measure in infancy and toddlerhood. Body weight is the result of increasing or decreasing all the tissues in the body. Body weight is currently used as the best indicator to determine the state of nutrition and child development, sensitive to slight changes, objective measurement. [3]

During the growth period, the baby's body weight is divided into two, namely 0–6 months and 6–12 months of age. And aged 0–6 months of growth, body weight will increase every week around 140-200 grams and body weight will be twice the birth weight at the end of the 6th month. Meanwhile, at the age of 6-12 months there is an increase every week of about 25-40 grams and at the end of the 12th month there will be a threefold increase in birth weight. During playtime, there is an increase in body weight of about four times the birth weight at the age of approximately 2.5 years and weight gain each year is 2–3 kg. in the pre-school and school period there will be weight gain each year approximately 2–3 years.[2]

Factors that influence the increase in newborn body weight namely, Mean weight gain is not the same during pregnancy. Approximately 5% of the total weight gain is usually in the first 10-13 weeks of pregnancy and the remaining 95% is almost entirely mean in the remainder of the pregnancy. In the last trimester of pregnancy, growth in weight is more rapid. Peak growth in body weight is reached at 33 weeks of gestation. At approximately 26 weeks of age, the number of lesions is only 1% of the total body composition (10 grams) after which the accumulation of fat continues to reach 12% of total body weight or 360 grams at 38 weeks of age. Therefore if the peak growth in length is reached in the 2nd trimester.[3]

The nutritional needs of newborns still really need breast milk to meet the nutritional needs of their bodies. Breast milk contains various components according to their needs. Breast milk contains as much as 87.5% water, therefore babies who get enough breast milk do not need to get additional water anymore. Breast milk is in accordance with the baby's digestive tract, while

formula milk is thicker than breast milk. [2] The

age of the pregnant woman is an important factor in pregnancy. Pregnant women in developing countries marry at a young age, around the age of menarche, where the risk of giving birth to LBW is 2 times lower within 2 years after menarche. Besides, there is a risk of miscarriage and stillbirth. This happens because of the eating competition between the mother's fetus which is still in the growth stage, as well as hormonal changes during pregnancy so that the woman has a greater body need for nutrients than other adult women. The additional nutritional requirements caused by pregnancy adjusting to the required growth will increase the risk for her pregnancy. In addition, too young an age has risks because it is biologically and psychologically immature. [4]

Based on the theory and research results that researchers have conducted at the East Bogor Public Health Center with 50 respondents, that some newborn respondents have more weight, namely 26 respondents (52.0%), So it can be concluded that the incidence of weight gain New born babies at the East Bogor Puskesmas in 2019 are influenced by the increase in weight of pregnant women.

c. The Relationship between Pregnant Women Weight Gain and Newborn Weight at the East Bogor Community Health Center in 2019

Based on table 4.3 of the 50 respondents, the increase in weight for pregnant women was less and there were 13 respondents (26.0%) overweight newborns. The results of the analysis obtained again for *p value of* 0.043 where the *p value was* 0.043 <(0.005), so Ho was rejected and Ha was accepted, which means that there was a relationship between weightpregnant women and new birth weight at the Bogor Timur Health Center in 2019.

This is in line with research conducted by research conducted by Anika Candrasari (2015) with the title The Relationship Between Pregnancy Weight Gain and Weight Loss of Newborns in Semarang Regency. With the results of thecorrelation test *Spearman* , the p value was 0.040, indicating that the correlation between maternal weight gain and birth weight was not significant. The results of linear regression in the ANOVA test obtained p value = 0.000. The adjusted R square value on the model summary results in 0.111, which means that the equation obtained is able to explain the baby's birth weight by 11.1%. The remaining 88.9% is explained by other variables not examined. The conclusion of this study is that there is a relationship between weight gain body of pregnant women with birth weight babies in Semarang district.

According to the International Federation of Gynecological Obstetrics,

pregnancy is defined as the fertilization or fusion of *spermatozoa* and ova and followed by nidation or implantation. When calculated from the time of fertilization to the birth of the baby, a normal pregnancy will last within 40 weeks or 10 months or 9 months according to the international calendar. Pregnancy is divided into 3 trimesters, where the first trimester lasts in 12 weeks, the second trimester 15 weeks (weeks 13 to 27), and the third trimester 13 weeks (weeks 28 to 40).[5]

The normal weight gain for pregnant women according to BMI is 11-15 kg.[1] Many factors affect the weight of the newborn, including the sex of the baby, the state of the placenta, the mother's age, maternal activity, smoking habits, birth spacing, height, maternal weight and nutrition, but the relationship between the mother's nutritional status and weight born in child survival, which has consistently shown that birth weight is the size of the mother's body, namely the mother's height and weight before pregnancy. [1]

Weight gain during pregnancy is an indicator of plasma volume expansion and positive caloric balance and roughly represents the adequacy of a diet. In terms of weight gain during pregnancy, it will be described based on the pattern of weight gain, components of weight gain and recommended weight gain. [2] The size or size of a baby is born describes two factors, namely the length of pregnancy and the duration of the fetus. Gestational age should be considered, on the other hand, the increase in size that occurs with age is very much dominated and influenced by growth and maturity confounding factors. In general, large babies are more mature and it is known that immature babies (especially those who are not full term such as births less than 32 weeks) have a higher risk of death, illness and developmental failure. Failure to consider / take into account gestational age becomes dominant and a major problem in interpretation, which in turn can affect decision makers at the clinic as well as at the level of public health.[1]

Body weight is the most important anthropometric measure in infancy and toddlerhood. Body weight is the result of increasing or decreasing all the tissues in the body. Body weight is currently used as the best indicator to determine the state of nutrition and child development, sensitive to slight changes, objective measurement. [3]

During the growth period, the baby's body weight is divided into two, namely 0–6 months and 6–12 months of age. And aged 0–6 months of growth, body weight will increase every week around 140-200 grams and body weight will be twice the birth weight at the end of the 6th month. Meanwhile, at the age of 6-12 months there is an increase every week of about 25-40 grams and at the end of the 12th month there will be a threefold

increase in birth weight. During playtime, there is an increase in body weight of about four times the birth weight at the age of approximately 2.5 years and weight gain each year is 2–3 kg. in the pre-school and school period there will be weight gain each year approximately 2–3 years.[4]

Based on table 4.3 of the 50 respondents, the increase in body weight of pregnant women is less and the weight of the newborn is more, there are 13 respondents (26.0%). The analysis results obtainedgain for *p value* 0.043 where the *p value is* 0.043 <(0.005), then Ho is rejected and Ha is accepted, which means that there is a relationship between weightpregnant women and new birth weight at the Bogor Timur Health Center in 2019. With the weight of the newborn at the East Bogor Community Health Center in 2019. The incidence of weight gain for pregnant women at the East Bogor Community Health Center is caused by the behavior of the newborn's weight, so it can be concluded that the weight of pregnant women is influenced by the weight of the newborn.

Conclusion

From the results and discussion of research carried out at the East Bogor Health Center in 2019, regarding the Relationship between Pregnant Women Weight Gain and Newborn Weight, several conclusions can be drawn, namely as follows:

1.Frequency distribution of the total 50 respondents Weight Gain for Pregnant Women At the East Bogor Community Health Center in 2019, 22 respondents (44.0%) experienced an increase in the weight of pregnant women.

2.Frequency distribution of the total number of 50 respondents with a weight gain for newborns at the East Bogor Community Health Center in 2019, data that experienced weight gain for newborns were 26 respondents (52.0%).

3. Based on table 4.3 of 50 respondents, the increase in weight of pregnant women is less and the weight of newborns is more, there are 13 respondents (26.0%). The analysis results obtained *p value* 0.043 where the *p value is* 0.043 <(0.005), then Ho is rejected and Ha is accepted, which means that there is a relationship between weightpregnant women and newborn weight at Puskesmas Bogor Timur in 2019.

Suggestions

gain forBased on the results of this study there are suggestions that Researchers can convey, among others:

1. Educational Institutions

It is hoped that they can provide reference material and reading material for maternity nursing courses and knowledge about weight gain for pregnant women, as well as as a

reference in carrying out further research on weight gain in newborns.

2. For the Research Site

It is hoped that this researcher can be used as a guide to be able to provide knowledge about the health of increasing body weight of pregnant women with new birth weight at Puskesmas Bogor Timur.

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RELATIONSHIP LONGING IN 3-MONTH CONTRACEPTION TOOLS WITH BODY INCREASE IN KB ACCEPTORS IN CIBURAYUT VILLAGE, CIGOMBONG DISTRICT BOGOR DISTRICT

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ABSTRACT

Kontepsi is an effort to prevent pregnancy. The contraceptive injection is the most common contraceptive used by married women (32%), followed by birth control pills (13.6%), and IUDs (3.9%).

The purpose of this study is to know the relationship between the length of time using injection contraceptives for 3 months with changes in body weight in family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019. This

type of research is descriptive analytic withresearch design *cross sectional*. This research was conducted in Ciburayut Village, Cigombong District, Bogor Regency in 2019 in December with a sample of Kb acceptors using 3 months injection Kb. The number of samples was 67 respondents *sampling technique was consecutive sampling*. The. Data collection was obtained through observation sheets. The data analysis used was univariate and bivariate data analysis (*Kendall's tau-b*).

Based on observations by 67 respondents, it was found that the duration of using kb injection 3 months with a long use of ≥ 1 year amounted to 52 people (77.6%), changes in body weight in kb acceptors did not increase, namely 51 respondents (76.1%) . The results of thetest *Kendall's tau-b* correlated with the length of time using injection contraceptives for 3 months with changes in body weight for family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019, the value of *P Value* = 0.046, which means that there is a relationship between 3 months of injection contraceptive use and changes in body weight in family planning acceptors in ciburayut village, cigombong sub-district, bogor district in 2019 with anresult *Odd Ratio (OR)* of 4.181 meaning that the long duration of use will have the opportunity to influence weight change not to increase by 4 times compared to new use. So that at the final conclusion of the statistical test, then there is a relationship between the length of time using injection contraceptives for 3 months with changes in body weight in family planning acceptors in the village of Ciburayut, Cigombong sub-district, Bogor district in 2019.

Keywords **:** Old Use, Change in Body Weight

INTRODUCTION

Contraception is an effort to prevent pregnancy. This effort can be temporary, it can also be permanent. Contraceptive use is one of the variables that affect fertility. The type of injection contraception that is often used is *Depo Medroxy Progesterone Acetate* (DMPA) which is given every 12 weeks (3 months) by means of intramuscular injection. The contraceptive injection is the most common contraceptive used by married women (32%), followed by birth control pills (13.6%), and IUDs (3.9%).[1] The side effect of injection contraceptives with the highest

frequency is weight gain, the continuing effect of weight gain is obesity, which can cause an increase in blood fat, high blood pressure, coronary heart disease, and stroke.[2]

According to the *World Health Organization* (WHO) (2014) contraceptive use has increased in many parts of the world, especially in Asia and Latin America and lowest in Sub-Saharan Africa. Globally, users of modern contraceptives have increased insignificantly from 54% in 1990 to 57.4% in 2014. Regionally, the proportion of couples of reproductive age 15-49 years reporting that users of modern contraceptive methods have increased for at least the last 6 years. In Africa from 23.6% to 27.6%, in Asia it has increased from 60.9% to 61.6%, while Latin America and the Caribbean increased slightly from 66.7% to 67.0%. An estimated 225 million women in developing countries want to delay or stop fertility but do not use any contraceptive method for the following reasons: limited choice of contraceptive method and experience of side effects. The unmet need for contraception is still too high, an injustice driven by population growth.[3]

From the data of West Java province in 2016 the number of couples of childbearing age / PUS was 9,715,469 and the number of active family planning users including IUD 798,654 MOW 177,664 MOP 53,226 condoms 334,039 implants 392,978 injections 3,665,048 pills 1,665,048. Data from the Bogor City Health Office in 2016 were 153,463 fertile aged couples / PUS. And the number of active family planning users includes IUDs 1,176.55 Injections 371,800 Pills 13.7418 Implants 48,956 MOW 27,384 MOP 2309 Condoms 18,792.[4] A

survey conducted by the National Family Planning Coordinating Board (BKKBN) in 2014 stated that the number of active family planning acceptors in Indonesia from January to December 2014 was 30,613,578 couples or around 75.31%. Based on the survey results, the largest number of family planning acceptors in Indonesia were injection family planning acceptors, namely 14,763,917 or 48.13% of active family planning participants. This shows that injectable contraception is indeed one of the most widely used types of contraception.[5]

In Indonesia, the combined category of overweight and obesity is 21.7% with the highest prevalence of obesity is North Sulawesi (37.1%) and the lowest is 13.0% in the province of East Nusa Tenggara. The prevalence of obesity in men is lower (16.3%) than women (26.9%). Some weight gain and obesity can be due to fluid retention, but it tends to result from increased food intake, but one potential contributor to weight gain in adolescents and adult women is the effect of using hormonal contraceptives.[6]

Changes in body weight were one of the side effects complained of by the 3 month injection family planning acceptors. The side effect of a contraceptive method is a factor that needs to be considered in determining the decision to continue using

the contraceptive method. So it is necessary to seek protection from side effects as well as its preservation. The effect of weight gain on 3-month injection contraception is due to DMPA stimulating the appetite control center in the hypothalamus which causes the acceptors to eat more than usual. Therefore, the use of contraception often complains of weight gain.[7] Changes in weight gain are the most common metabolic disorders experienced by humans. Changes in weight gain can be influenced by various factors such as hormonal factors contained in hormonal birth control, namely *estrogen* and *progesterone*.[8]

Based on research conducted by Murniawati Sri Endang with the title of the Old Relationship of 3-month Injectable Contraceptive Use with the Incidence of Weight Gain in Independent Practical Midwives in Semarang City with the results of research on the relationship between 3 months of injection contraceptive use and weight gain in independent practicing midwives, Mrs. Ely Tyaningsih Am.Keb, there were 15 respondents (75.0%) who experienced weight gain in the obesity category with 3 months of injection contraceptive use between 4-6 years.[1]

Based on the results of a preliminary study that researchers conducted on December 13, 2017. To 10 respondents, 7 (70%) of 10 respondents said that their body weight increased after using 3-month injection contraceptive with a period of use ≥ 3 years, 2 (20%) of respondents said that their body weight gained after using injection contraceptive for 3 months with a period of less than 3 years, and 1 (10%) of respondents said that they did not gain weight after using injectable contraceptives with a period of less than 3 years.

Based on the above background, the researcher wanted to know the relationship between the duration of use of injectable contraceptives for 3 months with changes in body weight in Ciburayut Village, Cigombong District, Bogor Regency in 2019. Theto know the long relationship between the use of injectable purpose of this study iscontraceptives 3 months with changes in body weight in Ciburayut Village, Cigombong Subdistrict, Bogor Regency, 2019.

RESEARCH METHOD

The type or design of this research is descriptive analytic, namely research that tries to explore how and why this health phenomenon occurs. Then perform a dynamic analysis of the correlation between phenomena or between risk factors and effect factors. The design in this study used a *cross sectional study*. The research method is aapproach *cross sectional* (cross-sectional), which is a study to study the dynamics of the correlation between risk factors and effects, by approaching, observing, or collecting data at once (*point time approach*). That is, each research subject is observed only once and measurements are made of the character

status or subject variables at the time of examination.[9]

This research was conducted in Ciburayut Village, Cigombong District, Bogor Regency in December 2019. The sample in this study were family planning acceptors using 3-month injection family planning in Ciburayut Village, Cigombong District, Bogor Regency in 2019, totaling 203 family planning acceptors who met the inclusion and exclusion criteria. .. The sampling technique in this study using *consecutive sampling technique*. The number of samples in this study amounted to 67 respondents.

The variables of this study consisted of the length of time using injection contraceptives for 3 months and changes in body weight for family planning acceptors. Data processing and data analysis using the *computer program SPSS for windows* series 16. The analysis consists of univariate and bivariate analysis, where bivariate analysis analyzes the relationship between the length of time using the injection contraceptive method for 3 months and changes in body weight in the family planning acceptors.

RESEARCH RESULTS

Table 1 Distribution of the age frequency of respondents in Ciburayut Village, Cigombong District, Bogor Regency

Age	Frequency	Percentage
17-25 years	28	41.79%
26-35 years	24	35.82%
36-46 years	15	22.38%
Total	67	100%

Based on Table 1 regarding the age frequency distribution of respondents can be seen that of the 67 respondents most of the respondents were 17-25 years old as many as 28 people (41.79%).

Table 2 Frequency distribution of respondents' occupation in Ciburayut Village, Cigombong District, Bogor Regency

Occupation	Frequency	Percentage of
Not Working	39	58.20%
Civil Servants	1	1.49%
Self-employed	12	17.91%
Teachers	8	11.94%
Private Employees	7	10.44%
Total	67	100%

Based on Table 2 regarding the frequency distribution of the respondent's work, it can be seen that of the 67 respondents most of the respondents were 39 people (58.20%) who did not work.

Table 3 Frequency Distribution of Duration of Use of 3-Month Injectable Contraceptives in Ciburayut Village, Cigombong District, Bogor Regency, 2019.

No	Duration of Use	Frequency	Percentage
1	New	15	22.4%
2	Old	52	77.6%
	Total	67	100%

Based on table 3 Old Frequency Distribution The usage showed that the results of 67 respondents were mostly Kb acceptors with a long duration of use, namely ≥ 1 year, totaling 52 people (77.6%).

Table 4 Frequency Distribution of Body Weight Change in Ciburayut Village, Cigombong District, Bogor Regency in 2019.in Weight Loss

No	Change	Frequency	Percentage%
1	Increased	16	23.9%
2	Not increased	51	76.1%
	Total	67	100%

Based on table 4 Frequency Distribution of Weight Change It shows that the results of 67 respondents most of the changes in body weight did not increase as many as 51 respondents (76.1%).

Table 5 Relationship Lama Use of Contraceptive Injection 3 Months With Changes Weight in the Village Ciburayut the District Cigombong Bogor District 2019

Old Use	Change Weight				Total		OR (CI 95%)	*P Value*
	Increase		No Increase					
	n	%	n	%	n	%		
New	7	43,8	8	15.7	15	22.4	4. 181	0.046
Old	9	56.2	43	84.3	52	84.3		
Total	16	100	51	100	67	100		

Based on table 5, the results of the analysis of the relationship between the length of time using injection contraceptives for 3 months and changes in body weight for family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency, in 2019, it was known that of the 52 respondents with a long duration of use and changes in body weight did not increase, 43 respondents (84.3%). With a *p value* = 0.046 so that the *p value* ≤ 0.05, then Ho is rejected and Ha is accepted, which means that there is a relationship between the length of time using injection contraceptives for 3 months and changes in body weight for family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019 and the results The analysis also shows thevalue *Odd Ratio (OR)* of 4.181 means that the old usage time will have the opportunity to influence changes in body weight not to increase by 4 times compared to the new use.

DISCUSSION

a. Duration of Use of 3-Month Injectable Contraceptives in Ciburayut Village, Cigombong District, Bogor Regency, 2019

Table 4.3 shows that out of 67 respondents, some family planning acceptors with 3 months of injection contraceptive use in the old category, ≥ 1 year, total 52 respondents (77.6%).

This is supported by research conducted by Sendri Mayanti, 2017 concerning "The Old Relationship of Using 3-Month Injectable Contraceptives with Changes in Body Weight and Changes in Libido in the KIA Poli Room, Puskesmas Puwatu." or most of it duration of use of the old category is ≥ 1 year.[10]

According to (Maria Kurnia Dewi Ulfah, 2013) in the Textbook on Reproductive Health and Family Planning for Midwives, there are many advantages of 3 months injection of family planning, namely very effective, long-term pregnancy prevention, no effect on husband and wife relationships, few side effects, clients There is no need to store injectable drugs, and can be used by women over 35 years of age until *primenopause*.[11]

There are two types of injectable contraceptives that contain progestins, namely Depo Mendroksi Progesterone (DMPA), containing 150 mg of DMPA given every 3 months by way of intramuscular injection (in the buttocks area) and Depo Noretisteron Enantat (Depo Noristerat), containing 200mg of Noretisterone Enantat, given every 1 month by way of intramuscular injection (buttocks or buttocks area).[11]

Injectable contraceptives are one of the most widely used methods of contraception. These contraceptives have good effectiveness, but have some side effects. These side effects are menstrual disorders in the form of amenorrhoea, spotting and bleeding outside the menstrual cycle. In addition, there is an increase in body weight when using 3-month injection contraception.[12]

Based on the results of the research and the theory above, the researchers concluded that there are many advantages of using 3-month injection contraception, one of which is that it is more practical and effective because acceptors do not need to store drugs. The same is the case in the field where most family planning acceptors have used family planning for a long period of time, namely ≥ 1 year.

b. Changes in body weight for family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019

Table 4.4 shows that out of 67 respondents, some family planning acceptors with changes in body weight category did not increase, namely 51 respondents (76.1%).

This is in line with the research conducted by Sri Hadi 2017 with the title "The Old Relationship of Using 3-Month Injectable Family Planning with Weight Gain for Family Planning Acceptors in the KIA Pusekesmas Puwatu Poli Room in 2017". From 67 respondents, there was a correlation between the duration of 3 months of injection contraceptive use and the increase in body weight *(P value* = 0.000 <0.05).

As the theory put forward by Hartanto (2013) that from the use of

injection contraceptives for a long time can cause weight gain due to the content of the hormone progesterone which can cause appetite to increase if the use of high or excessive doses because it can stimulate the hypothalamic appetite control center which causes the acceptor to eat more.[10]

Basically, changes in body weight are influenced by several factors. In general, these factors can be divided into two major groups, namely internal factors and external factors. Internal factors are factors that can affect a person's weight and originate from or on the body itself. In this case it is divided into 4 parts, namely: age, psychology and heredity. As for external factors, it means that all factors that can affect changes in body weight directly and originate from outside the body are divided into two parts, namely: food and the physical environment.[13]

Based on the results of the research and the theory above, the researchers concluded that changes in body weight in the use of 3-month injection contraception are strongly influenced by many factors, namely internal factors (genetic, thermal regulation, metabolism, hormonal disorders) and external (physical activity and nutritional intake).[13] One of the most influencing factors is hormones, similar to what happened in the field where the acceptors of many respondents experienced an increase in body weight but the increase was only a few kg and was not included in the increased weight category so that many family planning acceptors whose changes in body weight did not experience it. enhancement.

c. The Old Relationship of Using 3-Month Injecting Contraceptives with Changes in Body Weight for Family Planning Acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019

Based on table 4.5 Analysis results of the long relationship between the use of 3-month injection contraceptives and changes in body weight for family planning acceptors in Ciburayut Village, Cigombong District, Regency Bogor in 2019. It can be seen that from 67 respondents there were 43 (84.3%) family planning acceptors who used a long period of use and changes in body weight did not increase. With a *P value of* 0.046, this means that P *value* ≤ 0.05 so that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. This shows that there is a relationship between the length of time using injection contraceptives for 3 months and changes in body weight in family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019.

This is in line with research conducted by Anisa Putri Pinasti, 2013 regarding the title "The Effect of Contraceptive Use. Injecting Against Weight Gain at Family Planning Acceptors at the Public Health Center, Sukodono District, Sragen Regency ". Of the 41 respondents, there was an effect

of using injection contraceptives on weight gain for family planning acceptors *(P value* = 0.002 <0.05).

In general, the use of injectable contraceptives for a long period of time can cause weight gain due to the content of the hormone progesterone which can cause appetite to increase when using high or excessive doses because it can stimulate the appetite control center in the hypothalamus which causes acceptors to eat more.[10]

Based on the results of the research and the theory above, the researchers concluded that the duration of using injection contraceptives for 3 months can affect weight changes due to several things as described above, besides that the researchers argue that many respondents experience weight gain but the increase is only a few kg and is not included in an increased weight category so that many family planning acceptors whose weight changes did not experience an increase.

CONCLUSION

1. It is known that the results of research in Ciburayut Village, Cigombong District in 2019, from 67 respondents, most of the family planning acceptors with a long duration of use were 52 respondents (77.6%).
2. It is known that the results of research in Ciburayut Village, Cigombong District in 2019, from 67 respondents, most of the family planning acceptors with changes in body weight did not increase as many as 51 respondents (76.1%).
3. Based on thestatistical test *Kendall's tau-b* , theresults are obtained *P value* 0.046. *P value* ≤ 0.05 this means that Ha is accepted Ho is rejected. It can be concluded that there is a relationship between the length of time using an injection contraceptive for 3 months with changes in body weight in family planning acceptors in Ciburayut Village, Cigombong District, Bogor Regency in 2019.

ADVICE

1. for STIKes Wijaya Husada Bogor
   It is hoped that it can serve as a reference material regarding the length of time using injection contraceptives 3 months with changes in body weight in family planning acceptors, especially in maternity nursing at STIKes Wijaya Husada, Bogor City.
2. For Ciburayut Village
   Providing a choice of contraceptive methods for health workers and the community to choose contraception with minimal side effects in Ciburayut Village, Cigombong District, Bogor Regency.

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THE CORRELATION OF MOTHER KNOWLEDGE ABOUT COLOSTRUMS WITH GIVING COLOSTRUMS IN BORN NEW BABIES IN BPM MIDWIFE RISMA DARMAWATI OF BOGOR CITY

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ABSTRACT

Colostrum is the first liquid secreted by the breast, which is a yellowish viscosity thicker than the mature milk. Little, colostrum is enough to meet the nutritional needs of the baby. Therefore colostrum must be given to newborns. The amount of colostrum varies depending on the baby's suction in the first days of birth. A little, but enough to meet the nutritional needs of the baby. Therefore colostrum must be given to newborns. The purpose of this study is to determine the relationship of mothers about colostrum with the provision of colostrum in newborns at BPM Midwife Risma Darmawati in 2019 ".

This type of research is quantitative analytic, using cross sectional research methods. How to take the sample of this study with total sampling with the number of 35 mother respondents who have children aged 0-12 months at BPM Midwife Risma Darmawati, Cibanteng Village, Bogor Regency. Data collection was obtained through a mother's knowledge questionnaire about colostrum. Data analysis used was univariate and bivariate (Chi Squere).

Of the 35 respondents in getting that knowledge, you can know that those who knew about colostrum were 19 people (54.3%), and those who did not know about colostrum were 16 people (45.7%). Giving colostrum in newborns is 16 respondents (45.7%) who did not give colostrum and 19 respondents (54.3%) gave colostrum. Based on the bivariate analysis table statistical test obtained P-Value = 0. 012 and $\alpha = <0.05$ then P value $<\alpha$, so that Ho is rejected, that is, there is a significant relationship between the two variables

There is a correlation between mother's knowledge of colostrum and the administration of colostrum in newborns at BPM Risma Darmawati , Cibanteng Village, Bogor Regency in 2019. The value of p value = α 0.012 with p value $\leq \alpha$ 0.05. This research is expected to improve the knowledge of postpartum mothers about colostrum to be even better and encourage postpartum mothers to give colostrum to newborns.

Keywords : Colostrum, Knowledge, Newborns

INTRODUCTION

Colostrum is the first fluid secreted by the breast glands, which is a liquid with a viscous viscosity that is yellowish in color compared to mature milk. Colostrum contains debris tissue and residual material found in the alveoli and ducts of the breast glands before and after the puerperium. Colostrum also contains white blood cells and antibodies that are higher than actual breast milk, especially the content of immunoglobin A (IgA), which helps coat the intestines of the baby who is still vulnerable and prevents germs from entering the baby. IgA is also helpful in preventing babies from developing food allergies.[1]

The benefit of colostrum for babies is that colostrum contains anti-body substances, especially

immunoglobulins (IgG, IgA, and IgM) which protect babies from various infectious diseases, especially diarrhea. Colostrum also contains rich in vitamin A which protects babies from eye diseases. In addition, colostrum also contains protein, carbohydrates and low fat, so that it is in accordance with the nutritional needs of the baby in the first days of birth. Colostrum is also an ideal laxative to help remove meconium viz The first baby poop is greenish black. The amount of colostrum produced varies depending on the baby's suction in the first days of birth. Although a little, but enough to meet the nutritional needs of babies. Therefore colostrum must be given to newborns.[2]

A newborn is an hour old baby born at 37-42 weeks of gestation and weighs 2,500-4000 grams. Normal newborn is a baby born in the back of the head through the vagina without using tools, at 37 weeks to 42 weeks of gestation, weighing 2500-4000 grams, Apgar value> 7 and without congenital defects. According to Mochtar (1998), newborns are said to be normal if they have several signs including: *Appearance color* (skin color) of the whole body is reddish, *Pulse* (*heart rate)heart rate* or> 100 x / minute, *Grimace* (reaction to stimulation) , crying, coughing / sneezing, Activity (muscle tone), active movement, *Respiration* (breath effort), the baby cries strong.[3 4]

Some opinions that prevent post partum mothers from giving colostrum immediately to newborns, including fear of the baby getting cold, after giving birth the mother is too tired to breastfeed her baby, colostrum does not come out or the amount of colostrum is not sufficient, and colostrum is not good and even dangerous for the baby. This will not happen if a post partum mother has good knowledge and gets support from her family.[5] Knowledge is the result of human senses, or the result of a person's knowing of objects through their senses (eyes, nose, ears, etc.).[6 The

habit of postpartum mothers in Indonesia is often encountered by mothers who do not have knowledge about breastfeeding which is white and thick yellow liquid or what is called colostrum is thrown away is considered to cause abdominal pain in babies. Therefore, before mature milk or (ASI) comes out, the baby is given replacement food such as sugar water and honey, as a result of this lack of understanding it is detrimental to the baby's health.[7]

From the data obtained at BPM Midwife Risma Darmawati, it was found that there were still many postpartum mothers who did not give colostrum to their babies. Due to the

large number of post-partum mothers who visit BPM Midwife Risma Darmawati is low-educated with the majority of junior high school education and does not understand colostrum and has not taken the act of giving colostrum.

From a preliminary study conducted by researchers in November 2017 at BPM Bidan Risma Darmawati, Cibanteng Village, Bogor Regency, it was found that 12 mothers with live babies aged 0-5 months, of which there were 2 mothers who were knowledgeable and gave colostrum to their babies. 6 mothers were knowledgeable enough and gave colostrum to their babies and 4 mothers were less knowledgeable and did not give colostrum to their babies.

From the results of the interview, 2 knowledgeable mothers said they understood colostrum and had given their babies, 6 knowledgeable mothers said they did not understand colostrum but had given their babies and 4 knowledgeable mothers said they did not give colostrum to their babies because they did not understand colostrum and had an opinion. Colostrum is dirty milk.

Based on the data above, the formulation of the problem in this study is "Is There a Relationship between Mother's Knowledge of Colostrum and Giving Colostrum to Newborns at BPM Midwife Risma Darmawati 2019."

The purpose of this study was to determine the relationship between maternal knowledge about colostrum and colostrum administration to newborns at BPM Midwife Risma Darmawati 2019 ".

RESEARCH METHOD The

type and design of this study is an analytical study which aims to determine the relationship between maternal knowledge and colostrum administration to newborns at BPM Bidan Risma Darmawati, Cinangneng Village, Bogor Regency. The study design used aapproach *cross sectional.* This approach is intended to see the influence between the independent variable and the dependent variable. [8]

This research was conducted at BPM Bidan Risma Darmawati, Cibanteng Village, Bogor Regency. The population in this study were all mothers who visited BPM Bidan Risma Darmawati to carry out immunizations with babies aged 0-12 months, totaling 35 people. The sampling technique used in the study was *Total Sampling* where the sample used was all mothers who visited BPM Bidan Risma, Darmawati, Cibanteng Village, Bogor Regency in 2019 and were willing to be

respondents, totaling 35 mothers. The variables of this study consist of independent variables with dependent variables. The independent variable is the mother's knowledge and the dependent variable is giving colostrum to newborns.

RESEARCH RESULTS

Table 1 Distribution of Mother's Knowledge Frequency About Colostrum in BPM Midwife Risma Darmawati Cibanteng Village, Bogor Regency in 2019.

No	Knowledge	Frequency	Percentage (%)
1	Know	19	54.3%
2	Don't Know	16	45.7%
	Total	**35**	**100.0%**

Table 1 about frequency distribution Mother's knowledge can be seen that of the 35 respondents most of them know about colostrum, amounting to 19 people (54.3%).

Table 4.2 Frequency Distribution of Colostrum for Newborns at BPM Midwife Risma Darmawati Cibantenng Village, Bogor Regency in 2019.

No	Cognitive Function	Frequency	Percentage %
1	Given	19	54.3%
2	Not Given	16	45.7%
	Total	**35**	**100.0%**

Based on Table 2 regarding the distribution of the frequency of giving colostrum to newborns, it can be seen that most of the 35 respondents gave colostrum to newborns, amounting to 19 respondents (54.3%).

Table 3 The Relationship between Mother's Knowledge of Colostrum and Giving Colostrum to Newborns, Cibanteng Village, Bogor Regency in 2019.

Mother's Knowledge of	Giving Colostrum				Total		P *Value*	OR
	Given		Not Given					
	N	%	N	%	N	%		
Know ≥ 13	14	40.0 %	5	14.3 %	19	54.3 %	**0.012**	**6.160**
Don't know <13	5	14.3 %	11	31.4 %	16	45.7 %		
Total	**19**	**54.3 %**	**16**	**45.7 %**	**35**	**100.0 %**		

The results of the analysis of the relationship between mother's knowledge of colostrum and giving colostrum to newborns at BPM Bidan Risma Darmawati, Cibanteng Village, Bogor Regency in 2019. It can be seen that 19 respondents (54.3%) knew about colostrum and those who gave colostrum to

newborns. totaled 14 respondents (40.0%). With a *P value of* 0.012 this means that P *value ≤ 0.05* so that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. This shows that there is a relationship between maternal knowledge about colostrum and the provision of colostrum to newborns at BPM Bidan Risma Darmawati, Cibanteng Village, Bogor Regency in 2019.

DISCUSSION

a. Mother's Knowledge About Colostrum

Table 4.1 regarding the frequency distribution of Mother's Knowledge can be seen that from 35 respondents most of them knew about colostrum, amounting to 19 people (54.3%). This is supported by research conducted by Mardiana Mustafa, 2015 concerning "The Relationship Between Knowledge and Attitudes of Post-Postpartum Women and Giving Colostrum to Newborns in Rskd Mother and Child Mother Earth Makasar". From 89 respondents indicated that as many as 77 respondents or 86.5% had good knowledge. [9]

The results of the analysis conducted by researchers showed that many respondents knew about colostrum. This happened because of several things that could affect knowledge about colostrum, namely education, information / mass media, environment, experience, age.[10] The same is the case in the field even though the mother's education level is low, where the mother's knowledge is closely related to education. However, it can also be seen from several factors that can affect a mother's knowledge of colostrum, including information or mass media.

b. Giving Colostrum to Newborns

Table 4.2 shows that from 35 respondents it can be seen that 19 respondents (54.3%) gave colostrum.

This is supported by research conducted by Lilis Dwi Nurindah Sari, 2015 on "The Relationship between Post Partum Mother Knowledge About the Benefits of Colostrum and Colostrum Giving to Newborns at Bps. Aida Hartatik Amd, Keb Ds.Dlanggu Kec. Deket Lamongan ". From 28 respondents, it can be seen that there are 21 respondents (75%) or most of them give colostrum to newborns.[11]

The results of the analysis conducted by researchers, most of

the respondents gave colostrum to newborns. This happens because of several factors, one of which is the knowledge factor. According to the data obtained from the results of filling out the questionnaire by respondents where respondents tend to know about the benefits of colostrum for newborns with the level of respondent's knowledge of the importance of providing colostrum and the benefits of colostrum for newborns, it is in the sufficient category. This is what encourages respondents to give colostrum to newborns as is the case in the field.

c. "The Relationship between Mother's Knowledge Level of Colostrum and Giving Colostrum to Newborns at BPM Midwife Risma Darmawati Cibanteng Village, Bogor Regency in 2019"

The results of the analysis of the relationship between maternal knowledge about colostrum and colostrum giving to newborns at BPM Midwife Risma Darmawati Cibanteng Village, Bogor Regency Year 2019. It can be seen that of the 19 respondents (54.3%) knew about colostrum and those who gave colostrum to newborns totaled 14 respondents (40.0%). With a *P value of* 0.012 this means that P $value \leq 0.05$ so that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. This shows that there is a significant relationship between the level of maternal knowledge about colostrum and the provision of colostrum to newborns at BPM Bidan Risma Darmawati, Cibanteng Village, Bogor Regency in 2019.

This is in line with research conducted by Lilis Dwi Nurindah Sari, 2015 regarding " The Relationship between Post Partum Mother Knowledge About the Benefits of Colostrum and Colostrum Giving to Newborns at BPS. Aida Hartatik Amd, Keb Ds. Dlanggu Kec. Deket Lamongan. " The results obtained from 20 respondents with good knowledge and provide colostrum as much as 19 (95%). The results of thestatistical test *Chie-Square* obtained a P *value of* 0.000, this means that the P *value is <0.05* so that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. This shows that there is a relationship between the knowledge of post partum mothers about the benefits of colostrum and the provision of colostrum to newborns at BPS

Aida Hartatik Amd. Keb. Dlanggu Village, Deket Lamongan District 2015.[11]

The results of the research showed that there was a relationship between the mother's level of knowledge about colostrum and the provision of colostrum to newborns. This happens because several factors influence one of them is the level of knowledge.

Mothers with high knowledge have a tendency to give colostrum. This shows the link between knowledge about colostrum and its giving.
[11]

This needs attention and becomes material for stepping into more specific actions about what steps must be taken in providing correct knowledge about the benefits of colostrum administration for mother and baby. Knowledge is a guide in shaping a person's actions and behavior. The existence of knowledge will raise a person's awareness which ultimately triggers him to behave in accordance with the knowledge he has. The better the mother's knowledge about colostrum the higher the awareness to take actions in accordance with this knowledge. [12]

Based on the researcher's analysis, the researcher believes that maternal knowledge is influenced by the lack of information including about the benefits and advantages of colostrum. The more information obtained, the better the knowledge. Where a good level of mother's knowledge about the benefits of giving colostrum makes the mother motivated to give colostrum to her baby.

CONCLUSION

1. It is known that the results of research at BPM Midwife Risma Darmawati Cibanteng Village, Bogor Regency in 2019 from 35 respondents, most of the respondents knew about colostrum, amounting to 19 respondents (54.3%).
2. It is known that the results of research at BPM Bidan Risma Darmawati Cibanteng Village, Bogor Regency in 2019 from 35 respondents, most of the respondents gave colostrum to newborns, amounting to 19 respondents (54.3%).
3. Based on thestatistical test *Chie-Square* , the P *value was* 0.012. P *value* ≤ 0.05 means that Ha is accepted Ho is rejected. With

thevalue *Odds Ratiofor* knowledge (know / don't know) 6.160. It can be concluded that there is a significant relationship between maternal knowledge and the provision of colostrum to newborns at BPM Midwife Risma Darmawati Cibanteng Village, Bogor Regency in 2019.

SUGGESTIONS

1. for Educational Institutions

   As input to institutions to be able to improve the quality and quantity of institutions, especially in enhancing facilities and infrastructure for researchers.

2. For BPM Midwife Risma Darmawati

   As input for the BPM Midwife Risma Darmawati to provide counseling about colostrum to postpartum mothers in order to increase postpartum mothers' knowledge about colostrum to be better and encourage postpartum mothers to provide colostrum to newborns.

3. For Respondents

   As input to respondents to give colostrum to newborns.

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CORRELATION OF BREASTFEEDING TECHNIQUES WITH THE INCIDENCE OF DAMS ON BREAST MILK IN THE MOTHER OF POSTPARTUM IN BPM EUIS SUSILAWATI BOGOR DISTRICT

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ABSTRACT

According to the latest WHO data in 2013 breastfeeding affected by dams breastfeeding as many as 8242 post-partum mothers from 12,765 people. In 2014, there were 7198 mothers of ASI dams from 10764 people and in 2015 there were 6543 people from 9862 post-partum mothers (WHO, 2015).

This study aims to determine the relationship between breastfeeding techniques and the incidence of breast milk dams in post-partum mothers at BPM Euis Susilawati Bogor Regency in 2019. The

design of this study used descriptive analytic using aapproach *cross sectional*. The study population was 32 respondents, the instruments used were questionnaires and data analysis techniques used univariate and bivariate analysis (*Chi square*). Univariate analysis consisting of univariate analysis tests will also be presented with the normality test of research data. Furthermore, bivariate analysis will be analyzed to determine the relationship between breastfeeding technique and the incidence of breast milk dams in postpartum mothers at BPM Euis Susilawati, Bogor Regency.

Based on research on the relationship between breastfeeding techniques and the incidence of breast milk damages in post-partum mothers, it is known that there are 22 respondents (84.6%) of the breastfeeding technique respondents who do not have swelling and pain (no damaging milk). The results of statistical tests using *Chi Square* obtained *p value* = 0.023, which means that *p value* <0.05, it can be concluded that the decision taken is that Ha accepted Ho is rejected. From the statistical results, the OR (*Odds Ratio*) value is 11,000, which means that the wrong breastfeeding technique has a 11,000 chance risk of the incidence of breast milk damages.

There is a relationship between breastfeeding technique and the incidence of breast milk dam in postpartum mothers at BPM Euis Susilawati in 2019.

Keywords : breastfeeding technique, incidence of breast milk dams

INTRODUCTION

According to the 2012 WHO states that the biggest cause of infant and under-five mortality is malnutrition (58%), malnutrition is often associated with non-exclusive breastfeeding, in addition to infants who get formula milk can experience diarrhea, Acute respiratory infections and obesity can actually be prevented by exclusive breastfeeding (Ministry of Health, 2010).

At the age of more than 25 years, a third of women in the world (38%) are found not to breastfeed their babies because of breast engorgement (WHO, 2014). Swollen breasts can occur due to the constriction of the lactiferous ducts in the mother's breast and it can also occur that mothers have nipple disorders such as flat, deep and long nipples (Manuaba, 2010).

Postpartum maternal health has an impact that can spread to various aspects of life and is one of the parameters of the nation's progress in providing health services to the community, which is related to the maternal mortality rate (MMR) and infant mortality rate (IMR). According to WHO 81% AKI due to complications during pregnancy and childbirth, and 25% during the postpartum period.

According to the Basic Health Research (RisKesDas) in 2010, breastfeeding in Indonesia is currently concerning, the percentage of babies who are exclusively breastfed for up to 6 months is only 15.3%. This is because public awareness in encouraging increased breastfeeding is still relatively low (Ministry of Health, 2011).

Maternal Mortality Rate (MMR) in Indonesia is still high compared to countries in Asia, for example Thailand with MMR 130 / 100,000 KH. The 2012 IDHS data recorded that MMR in Indonesia reached 359 per 100,000 live births (KH). Although this figure is considered to have improved compared to the previous year, the Millennium Development Goals (MDGs) target of

reducing MMR to 102 / 100,000 (KH) in 2015 still requires special efforts and hard work from all parties, including the Government, the private sector and the community. A high MMR indicates that the degree of maternal health is vulnerable (Ministry of Health of the Republic of Indonesia, 2013).

In Indonesia, knowledge, awareness, the ability of mothers to provide basic rights for mothers and the rights of babies to enjoy breast milk are of great concern. Even though a mother is destined to be able to give her breast milk to the baby she has been born with. By nature, it is a natural process and also a noble duty for the mother herself for the safety of the baby's self in the future (Manuaba, 2010).

Nationally, the coverage of exclusive breastfeeding according to Basic Health Research (Riskesdas 2010) shows that the presentation of breastfeeding at 0 months is 39.8%, 32.5% at 1 month, 30.7% at 2 months, and 3 months. months as much as 25.2%, 4 months old as much as 26.3%, and 5 months old as much as 15.3%. Meanwhile, the coverage of exclusive breastfeeding according to Riskesdas 2013, aged 0-6 months was 38.0%. From these data it can be seen that based on the increasing age of infants, exclusive breastfeeding is decreasing (Riskesdas, 2013).

The 2012 Indonesian Demographic and Health Survey (IDHS), there are several things that hinder exclusive breastfeeding, including low knowledge of mothers about the benefits of breastfeeding and the correct way of breastfeeding, namely 19.07%, lack of lactation counseling services and support from health workers. 15.23%, the public's misconception about breastfeeding is 20.40%, the behavior for working mothers who do not provide exclusive breastfeeding is 21.12%, and aggressive marketing by baby milk manufacturers which not only affects mothers, but also health workers by 24.18% (Hipgrave et al, 2013).

According to the Indonesian health research and development agency in 2014, the incidence of breast milk dams in Indonesia occurred mostly in working mothers as much as 16% of breastfeeding mothers (Ministry of Health, 2014). Meanwhile, the results of a regional socio-economic survey (Suseda), West Java province in 2014, the incidence of breast milk dams in breastfeeding mothers in West Java was 13% (1-3 incidents of 100 breastfeeding mothers) occurred in cities and 2- 13% (2-13 incidents of 100 breastfeeding mothers) occurred in rural areas (Central Statistics Agency of West Java Province, 2014) (Depkes RI, 2009).

Maternal mortality in West Java in 2017 which was reported in the 2017 health profile table was 76.03 per 100,000 KH, when compared with the proportion of MMR in 2017 that was targeted, MMR in West Java Province was already below the 2015 national target (MDG).

Problems during the puerperium still occur in post partum mothers, one of the problems that often occurs is the dam of ASI, the dam will interfere with the process of breastfeeding the baby. During the puerperium and lactation These problems can affect the success of exclusive breastfeeding (Manuaba, 2010).

Dams of breast milk are the occurrence of swelling of the breasts due to increased venous and lymph flow, causing milk retention and pain accompanied by an increase in body temperature. Dams of breast milk can occur due to the narrowing of the lactiferous ducts in the mother's breast and can occur if the mother has nipple disorders such as flat, immersed, and sunken nipples. This incident is usually caused because the collected milk is not immediately excreted, so it becomes a blockage. Symptoms that often appear when breast milk is infested include swollen breasts, the breast feels hot and hard, the breast feels painful when pressed, the breast is reddish, the mother's body temperature is up to 38 ° C. If this incident continues, it can lead to mastitis and breast abscess (Rukiyah and Yulianti, 2010).

One of the causes of breast milk infestation is the wrong technique in the breastfeeding position, which can cause the nipple to become blistered and cause pain when the baby is breastfed. As a result, the mother did not want to breastfeed her baby and there was a milk breakdown. The lack of knowledge of postpartum mothers on breast care during pregnancy and the lack of knowledge on how to correct breastfeeding techniques and positions can hinder the baby in the suction process, so that the baby is not optimally emptied of the mother's milk, while excessive milk production can lead to problems with breastfeeding dams (Sarwono, 2008).

A very important role for midwives is to tell mothers to give breast milk to their babies because breast milk can provide immunity, and is very good for the growth and development of babies because in the research it was found that there were many difficulties in babies who from the beginning used formula milk, namely the occurrence of disease. diarrhea and unsatisfactory growth and development. And the role of mothers and the community can prevent breast infections, because what has happened so far people still consider breastfeeding techniques less important. The community considers that this ASI dam needs to be scrutinized because so far the community considers that ASI dam is just a common problem for mothers who are breastfeeding (Manuaba, 2009).

RESEARCH METHOD

The type of research used is descriptive analytic research with aresearch design, *cross-*

sectional namely a method of data collection that is carried out at the same time. This method aims to obtain complete data in a relatively short time (Chandra B, 2010).

This research was conducted at BPM Euis Susilawati in 2019. The population in this study were 32 postpartum mothers. By taking *total sampling* technique to determine the sample by taking all members of the population as a sample so that the sample in this study amounted to 32 people.

The variables of this study consisted of breastfeeding technique and the incidence of damaging breast milk in postpartum mothers. Data processing and data analysis from data analysis using a computer program *SPSS for windows* series 17. The analysis consists of univariate and bivariate analysis, where bivariate analysis analyzes the relationship between breastfeeding technique and the incidence of breast milk dams in postpartum mothers at BPM Euis Susilawati Bogor Regency in 2019.

Research hypothesis is a temporary answer to the formulation of a research problem. The truth of the hypothesis must be proven through the collected data (Sugiyono, 2014).

Ha: There is a relationship about breastfeeding technique with the incidence of dam breast milk in postpartum mothers at BPM Euis Susilawati in 2019. With a *p value of* 0.023 < 0.05.

Population is a generalization area consisting of objects or subjects that have a certain quantity of characteristics that are determined by researchers to be studied and then draw conclusions (Sugiyono, 2012). The population that will be used in this research is postpartum mothers who are in BPM Euis Susilawati Bogor Regency. The total population of postpartum mothers in 2019 is 32 postpartum mothers

The sample consists of an affordable part of the population that can be used as research subjects through sampling. While sampling is the process of selecting the portion of the population that can represent the existing population (Nursalam, 2013). The sampling technique or sampling method used in this study is *total sampling.*

Total sampling sampling technique where the number of samples is the same as the population (Sugiyono, 2011). The reason for taking the *total sampling is* because the total population is less than 100, the entire population is used as the research sample (Sugiyono, 2011). In this study, the samples were 32 postpartum mothers.

This research was conducted at BPM Euis Susilawati Bogor Regency in 2019.

Research Ethics, explains the research risks that may arise to respondents and researchers during the research and how to deal with risks. In addition, it is necessary to describe how the researcher obtained approval from potential respondents and approval from the ethical committee or local government if the research was conducted in the community.

Right to self determination

Willing or not being a respondent to participate in research activities. By using *Informed Consent* or the respondent's consent sheet in implementing

Right to privacy and dignity.

In this research ethics, the researcher assures the respondent that what the respondent says will not be shared with various parties, only between the respondent and the researcher. For example, in writing the name of the respondent only initials are used. So that respondents are more open in answering any questions that are given. So that what is needed in this research is complete

Right to anonymity and confidentially

For confidentiality is ethics in this research. The confidentiality of the information that has been collected will be guaranteed by the researcher and only certain data groups will be reported in the results of the research

Right to fair treatment

Discusses how all samples are treated the same in the study while respecting the agreement that has been agreed Primary data is the data obtained based on direct surveys to the research location. Primary data in this study are the results of a questionnaire about breastfeeding techniques and incidence of breast milk damages.

Secondary data is data that has been collected for purposes other than solving the problem at hand, this data is also easy to find. Secondary data in this study is in the form of data on the number of postpartum mothers in BPM Midwife Euis Susilawati. The

method of data collection is through questionnaires, in this case the respondent is asked to provide answers that have been provided in the format of questions about matters related to service quality and interest in returning to visit. . (Sugiyono, 2013)

This study uses a questionnaire that is distributed to patients, which contains several closed statements. These statements are prepared based on the operational definitions of each variable.

The questionnaire consists of 2, namely the first questionnaire about breastfeeding technique with the number of statements 7 with the Guttman scale, the measurement results are 1 = true, if ≥ median and 0 = false, if <median The second questionnaire about the incidence of breastfeeding damages, the measurement result is 1 = Yes, if there is swelling and pain in the breast ≥

median and 0 = No, if there is no swelling accompanied by pain in the breast ≤ median.

Validity shows the extent to which the question is relevant to what is being asked or what is measured in the study. To find out the validity of an instrument (in this case a questionnaire), namely by comparing the r_{count} with the $r_{table,}$ namely: (Sugiyono, 2013)

In this study, the validity test for the variable breastfeeding technique and the incidence of breast milk dam was carried out at BPM Rina Miranti with a total of 30 respondents. From the results of the validity test for the incidence of breastfeeding dam from 8 questions with 30 respondents getting a value of r_{count} more than 0.361 and the results of the validity test of the breastfeeding technique of 7 questions with 30 respondents getting a value of r_{count} more than 0.361, it can be concluded from all questionnaires stated valid.

Reliability is an index that shows the extent to which a measurement tool can be trusted and relied on. And to test the reliability using themethod *Alpha-Cronbach.* The standard used in determining *reliable* whether a research instrument isor not with questions is said to be *reliable* if someone's answer to the r table is at the 95% confidence level or the 1`significant 5% level. Thereliability level is *Cronbach Alpha* measured based on an alpha scale of 0 to 1. If the alpha scale is grouped into 5 classes with the same range.

From the results of the reliability test of the breastfeeding technique questionnaire and the incidence of breastfeeding dam, it was found that reliability if thevalue was *Cronbach alpha* ≥ 0.70, which was 0.711 for the variable of ASI dam, and 0.708 for the variable of breastfeeding technique, then 7 and 8 questions were reliable.

Data processing

After the data is collected, the next step is processing the data. According Notoatmodjo (2012), the data processing is:

Editing (Checking data)

Results of interviews, questionnaires, or observation from the field to do the editing*(editing)*in advance. In general, *editing* is an activity for checking and correcting the filling of a form or questionnaire.

Coding

After all questionnaires are edited or edited, then "coding" or "coding" is carried out, namely converting data in the form of sentences or letters into numeric or numeric

data Entering data (Data *entry*) or *Processing,* Datanamely the answers from each respondent in the form of "code" (numbers or letters) entered into the computer program or "*software*"

Data(*cleaningcleaning*)

When all data from each data source or respondent is complete entered, need to be checked again to see the possibility of code errors, incompleteness, and so on, then corrections or corrections are made.

The normality test is used to find out whether the data obtained from the research results are normally distributed or not. This test uses an analytical method with the *Shapiro-Wilk test* because there are many sample <50. A data is said to be normally distributed (symmetrical) if the significance level is> 0.05, whereas if the significance level is <0.05, the data is said to be not normally distributed. If the data is normally distributed, the data will be analyzed using a parametric statistical test (*Pearson product moment correlation*). Meanwhile, if the data is not normally distributed, according to the discussion in the previous chapter, it will be analyzed using a non-parametric statistical test (*Chi Square correlation test*).

Data analysis is to facilitate interpretation and test the research hypothesis. The analysis in this research includes Univariate and Bivariate analysis (Sugiyono, 2013).

Univariate Analysis Univariate

analysis is the analysis of each variable expressed by describing and summarizing data in a scientific way in the form of tables or graphs. This univariate analysis is used to clarify how the distribution and percentage and to determine the proportion of each independent and dependent variable.

The interpretation of the test results is said to be meaningful if it meets the criteria:

If X^2 counts> X^2 table then H is accepted, which means there is a relationship between the independent variable and the dependent variable with a confidence level of 95%

If X^2 counts <X^2 table then H is rejected which means there is no relationship between independent variables and the dependent variable with

RESEARCH RESULTS

This research was conducted in 2019. And the respondent's data was collected. In the implementation of data collection, the researcher was assisted by a land supervisor who was given an explanation beforehand, gave an explanation of the informed consent to be signed by the respondent in data collection, the respondent accepted or refused to be a respondent without any sanctions, the number of respondents was 32 respondents. The results of this study were analyzed by univariate and bivariate analysis. Univariate analysis is presented in the form of a frequency distribution which includes the incidence of breast milk dams in postpartum mothers at BPM Euis Susilawati in 2019. Then the bivariate analysis is to determine the relationship between breastfeeding technique and the incidence of breastfeeding dams in

postpartum mothers at BPM Euis Susilawati Bogor Regency in 2019.

A. Characteristics Respondents

1. Age of the postpartum mother

Table 1
Characteristics of Respondents by Age

No.	Age	Frequency	Percentage%
1.	25-30	25	78.1%
2	31-35	7	21.9%
	Total	32	100%

Source processed SPSS 23

Based on table 1 life characteristics postpartum mothers who do breast-feeding technique at BPM Euis Susilawati in 2019, most of the 32 respondents aged 25-30 years were 25 (78.1%) respondents.

2. Postpartum

Table 2
Educationcharacteristics of respondents based on Education

No	Education	Frequency	Percentage %
1.	Elementary	12	37.5%
2.	Junior	7	21.9%
3.	High School	13	40.6%
	Total	32	100%

Processed SPSS 23

Based on the table 2 characteristics of the education of postpartum mothers who carry out breastfeeding techniques at BPM Euis Susilawati in 2019 out of 32 respondents, most of the respondents whose primary education is 13 (40.6%) respondents.

3. Occupation

Table 3
characteristics of respondents based on occupation

No	Occupation	Frequency	Percentage %
1.	Yes	4	12.5%
2.	No	28	87.5%
	Total	32	100%

SPSS processed sources 23

Based on table 3 job characteristics of postpartum mothers who perform breastfeeding techniques in BPM Euis Susilawati in 2019 from 32 respondents, most of the respondents who did not work were 28 (87.5%) respondents.

4. The results of univariate analysis of the incidence of ASI dam.

Table 4
Distribution of Frequency of occurrence of ASI dams Respondents at BPM Euis Susilawati Bogor Regency

Breastfeeding Dam Incidence	Frequency	Percentage of
Swelling and Pain.	8	25%
No Swelling and Pain.	24	75%
Total	32	100%

Processed SPSS 23

Based on table 4 of the frequency distribution of the incidence of breast milk dams of respondents at BPM Euis Susilawati Bogor Regency, it can be seen that 24 respondents (75%) stated that there was no swelling and pain in the breasts.

5. Results of univariate analysis of breastfeeding techniques

Table 5
Frequency distribution of breastfeeding techniques at BPM Euis Susilawati Bogor Regency

Breastfeeding Technique	Frequency	Percentage%
Wrong	6	18.08%
True	26	81.03%
Total	32	100%

SPSS Processed Results 23

Based on table 5 the frequency distribution of breastfeeding techniques at BPM Euis Susilawati Bogor Regency, from 32 respondents, it can be seen that as many as 26 respondents (56.25%) were declared correct in doing breastfeeding techniques.

6. Results of bivariate analysis

Table 6 The
relationship between breastfeeding technique and the incidence of breast milk dams in postpartum mothers at BPM Euis Susilawati in 2019

Breastfeeding Technique Breastfeeding	Dam Incidence				Total		*P value*	OR
	Yes		None					
	F	%	F	%	F	%		
Wrong	4	66.7%	2	33.3%	14	43.75%	**0.023**	11,000
True	4	15.4%	22	84.6%	18	56.25%		1,483
Total	8	25.00%	24	75.00%	32	100.00 %		81.606

Based on table 6, the relationship between breastfeeding techniques and the incidence of breastfeeding dams from 32 respondents, there are 22 (84.6%) respondents. there is swelling and pain.

Based on the results of data analysis using thetest *Chi square* above, it was found that the significance value between breastfeeding technique and the incidence of breast milk dam was 0.023. This shows that the significance value is <0.05 so that it means that the hypothesis (H_0) is rejected, which means that there is a relationship between breastfeeding techniques and the incidence of breastfeeding dams in postpartum mothers at BPM Euis Susilawati, Bogor Regency.

From the statistical results also obtained the OR (Odds Ratio) 11,000, which means that the wrong breastfeeding technique has a 11,000 chance risk of the incidence of breast milk damages.

DISCUSSION

a. Breastfeeding Dam Incidence

Based on the results of research on the incidence of breast milk dams of respondents in BPM Euis Susilawati Bogor Regency, it can be seen that 24 respondents (75%) stated that there was no swelling and pain in the breasts (did not experience an incidence of breast milk dams).

Dams of breast milk are ducts due to narrowing of the lacteri ducts or by the glands not being emptied completely or due to abnormalities in the nipples. Dams of breast milk are the occurrence of swelling in the breasts due to increased venous and lymph flow, causing milk damages and pain accompanied by an increase in body temperature (Winkjosastro, 2010).

Breast milk dam occurs because of a blockage in the milk duct, not completely emptied. The complaints that arise are that the mother is swollen, hard, and feels hot until her body temperature rises. Handling it by emptying the milk with a massage or pump, giving *estradiol* while stopping breastfeeding, and symptomatic treatment so that complaints are reduced (Manuaba, 2010).
Dams are breast milk ducts due to narrowing of the lactiferous ducts or by glands that are not completely emptied or due to abnormalities in the nipples, these swollen breasts that often occur usually occur after delivery on the third or fourth day (Bahiyatun, 2009). The results of the study are in line with Khaira ammalia (2009) with the title of the incidence of breast milk dam in post-partum mothers based on work status in the village of Krajankulon, Kaliwungu, Kendal. There is a relationship between the work status of breastfeeding mothers and the incidence of breast milk dams. Breastfeeding mothers who experienced an incidence of ASI dam were as many as 25 people (48.1%) and 27 people who did not experience a damaging breast milk (51.9%).

So it can be concluded from the above statement the researchers found similarities between the theory and the results of the study, where postpartum mothers can experience breastfeeding dam incidents.

b. Breastfeeding Techniques

Based on the results of research on breastfeeding techniques at BPM Euis Susilawati Bogor Regency, from 32 respondents, it can be seen that as many as 26 respondents (56.25%) were declared correct in doing the breastfeeding technique.

Breastfeeding technique is one of the factors that affect milk production where if the breastfeeding technique is not correct, it can cause sore nipples and make the mother reluctant to breastfeed and the baby rarely breastfeeds. If the baby rarely breastfeeds because the baby is reluctant to breastfeed, it will be unfavorable, because the baby's sucking is very influential in stimulating further milk production. But often, mothers do not get information about the benefits of breastfeeding and about the correct breastfeeding technique (Mochtar, 2011).

Breastfeeding technique is a method of breastfeeding by a mother to her baby, in order to meet the nutritional needs of her baby (Safitri Hanum Dwi, 2010).

Breastfeeding technique is one of the factors that affect milk production where if the breastfeeding technique is not correct, it can cause the nipple to become chafed so that the mother is reluctant to breastfeed and the baby rarely breastfeeds. Often times, mothers do not get information about the benefits of breastfeeding and the correct breastfeeding technique (Angsuko, 2009).

The results of other studies are in line with research conducted by Fitri Nurhayati (2016) which shows that almost allmothers, *postpartum* namely 17 mothers (94.4%) have good knowledge about

breastfeeding techniques and most postpartum mothers do not experience ASI dam, namely 7 mothers (58, 3%). There is a significant relationship between the knowledge of post partum mothers about breastfeeding techniques and the occurrence of breast milk damages.

So it can be concluded from the above statement the researcher found similarities between the theory and the results of the study, where good knowledge of breastfeeding techniques has an effect on the incidence of breast milk damages inmothers *postpartum*. Because the factors that influence the incidence of breastfeeding dam, one of them is the lack of knowledge about breastfeeding techniques.

c. The relationship between breastfeeding technique and the incidence of breastfeeding dams.

Based on the data above, the researchers analyzed the relationship between breastfeeding techniques and the incidence of breastfeeding dams in post-partum mothers. there is ASI dam)

From the results of the data analysis using thetest *Chi square* above, the significance value between breastfeeding technique and the incidence of ASI dam is 0.023. This shows that the significance value is <0.05 so that it means that the hypothesis (H_0) is rejected, which means that there is a relationship between breastfeeding techniques and the incidence of breastfeeding dams in postpartum mothers at BPM Euis Susilawati, Bogor Regency.

One of the causes of breast milk infestation is the wrong technique in the breastfeeding position, which can cause the nipple to become blistered and cause pain when the baby is breastfed. As a result, the mother did not want to breastfeed her baby and there was a milk breakdown. Lack of knowledge of postpartum mothers on breast care during pregnancy and lack of knowledge on how to correct breastfeeding techniques and positions can hinder the baby in the suction process, so that the baby is not optimally emptied of the mother's milk, while excessive milk production can cause problems with milk dam.

Factors in the incorrect position of the baby's breastfeeding (incorrect techniques in breastfeeding can cause the nipple to become chafed and cause pain when the baby is breastfed. As a result the mother does not want to breastfeed her baby and an ASI dam occurs).

SIMPULAN

There is a relationship between breastfeeding technique and the incidence of breast milk dam in postpartum mothers at BPM Euis Susilawati in 2019

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CORRELATION HISTORY OF DIABETES IN PREGNANT MOTHERS WITH MACROSOMIA EVENTS

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ABSTRACT

Pregnancy is a diabetogenic condition characterized by weight gain and hormonal changes that stimulate insulin resistance in the tissues, which causes the body to not be able to maintain glucose in the normal range. Diabetes women can not overcome the increased need for insulin, causing plasma blood glucose to increase or so-called hyperglycemia. Gestational diabetes mellitus (DMG) is a disorder of carbohydrate tolerance that occurs or is first known when a pregnancy is in progress. This situation is common at 24 weeks of pregnancy and some patients will return to normal after delivery. Macrosomia or large baby is the birth weight of a baby exceeding 4000 grams. Macrosomia is also called giant baby. According to Cumningham all neonates weighing 4000 grams or more regardless of gestational age are considered macrosomia.

The purpose of this study was to determine the relationship of diabetes history in pregnant women with the incidence of macrosomia in the working area of Bogor sareal health center in 2019.

This type of research is an analytic survey with analytic research designs. Data collection methods used are cross sectional approach. The sampling technique in this study is Simple Random sampling. Data were processed using SPSS version 17 with Cramer's V statistical test.

The results obtained by data on the frequency of history of diabetes in pregnant women is the highest, there is a history of diabetes with the number of 46 mothers giving birth or 23.0% and those giving birth to the highest macrosomia babies with 32 babies or 16.0% of all mothers giving birth. Cramer's V results obtained p value 0,000 which is smaller than 0.05. There is a correlation between the history of diabetes in pregnant women with the incidence of macrosomia in the Work Area of Bogor City Health Center in 2019.

Key word : *Diabetes, Pregnant Women, Macrosomia*

INTRODUCTION

Pregnancy is a diabetogenic condition characterized by weight gain and hormonal changes that induce resistance. insulin in the tissues, which causes the body to not retain glucose within normal ranges. Diabetes mom can't cope with the increased need for insulin, causing glucose blood increased plasma or what is called *hyperglycemia*.[1]

Pregnancy or gestation lasts approximately 38-40 weeks from conception. During this time, the fetus has a placenta which functions as the respiratory, digestive and kidney systems during intrauterine life. Besides, the placenta also functions to distribute nutrients from mother to fetus to meet nutritional needs during pregnancy.

Based on data from the World Health Organization (WHO), Indonesia now ranks 4th in the largest number of pregnancies with diabetes world melitus. In 2009, the number of pregnancies with

diabetes in Indonesia it reaches 14 million people. Of this number, only 50% of sufferers are aware of the disease and about 30% of them take regular medication. According to several prevalence epidomological studies diabetes in Indonesia ranges from 1.5 to 2.3, except for Manado which tends to be higher at 6.1%.[2]

Gestational diabetes mellitus (DMG) is a disorder of carbohydrate tolerance that occurs or is known for the first time during pregnancy. This situation usually occurs at 24 weeks of gestation and some patients will return to normal after giving birth.[3] Pregnant women with *hyperglycemia* can be classified as pregnant women with diabetes who have settled before becoming pregnant (*pregestational*) or pregnant women with diabetes that just happened during pregnancy (*diabetes gestational mellitus*).

Called gestational diabetes when the impaired glucose tolerance that occurs during pregnancy returns to normal within 6 weeks of delivery. Diabetes mellitus (not gestation) is considered if impaired glucose tolerance persists after delivery. In this group, the condition of diabetes is experienced temporarily during pregnancy. This means that diabetes or glucose intolerance is first discovered during pregnancy, usually in the second or third trimester.13 Gestational diabetes occurs at weeks 24 to 28 during pregnancy. Although diabetes during pregnancy is one of the risk factors for developing type II diabetes. This condition is a temporary condition in which blood sugar levels will return to normal after childbirth.[3]

Pregnant women who have *gestational diabetes mellitus* have a high risk of *developing gestational diabetes mellitus* again in their next pregnancy, and also 17% - 63% of them will change and develop type 2 diabetes within 5 to 16 years.[3] *Gestational diabetes mellitus* can occur in pregnant women over 30 years of age, obese women (BMI ≥30), women with a history of diabetes mellitus in the parents or a history *of gestational diabetes mellitus* in previous pregnancies and giving birth to babies with birth weight ≥4000 grams and the presence of glucosuria.

Globally, the prevalence of diabetes mellitus in pregnancy is 16.9%. As many as 91.6% of cases of diabetes mellitus in pregnancy occur in countries with moderate and low economies, and limited access to maternal health services.[4]

Southeast Asia has the highest prevalence at 25%. *Gestational Diabetes Mellitus is* estimated to reach 380 million by 2025.[2] In Indonesia, the incidence of *gestational diabetes mellitus* (Diabetes in

pregnancy) is around 1.9-3.6% and about 40-60% of women have *diabetes. mellitus gestational* follow-up postpartum observation will suffer *gestational diabetes mellitus* or impaired glucose tolerance.[3] In West Java the incidence of *gestational diabetes mellitus* (diabetes in pregnancy) in 2013 was recorded at around 418,110 people out of the total population of 32,162,328 women in West Java who had *gestational diabetes mellitus*.[4]

The Pedersen hypothesis states that *hyperglycemia* in the mother cancause *hyperglycemia* alsoin the fetus because glucose can easily penetrate the placenta. This causes an excessive fetal insulin response resulting in excessive fetal growth which leads to large birth weight (*macrosomia*).

Macrosomia or large babies is the birth weight of the baby more than 4000 grams. *Macrosomia* is also called *giant baby*. According to Cumningham, all neonates weighing 4000 grams or more regardless of gestational age are considered *macrosomia*.[5]

Macrosomia is thecomplication *of gestational diabetes mellitus* most common. *Macrosomia was* defined as a baby born weighing ≥ 4000g. Study results at the end of the view of 40patients *diabetic Gestational mellitus* which was monitored for 3.5 years has the most frequent complications is the occurrence of *macrosomia*, this may be due toin general. *diabetes mellitus gestational* diagnosed late especially in our country.[5 The

incidence ofbabies *macrosomic* is about 5% of all births. *Macrosomia* is one of the causes that can complicate the delivery process that can cause birth trauma. Even newborns who are above normal weight cannot cry or breathe spontaneously and regularly at birth. If this condition persists for a long time, it can cause mental or physical disabilities.[6]

The prevalence of *macrosomia* in the world in women *with gestational diabetes mellitus* is 50%. *Gestational diabetes mellitus* which is not managed optimally will cause morbidity in mother and baby. Incidence of *macrosomia* in *gestational diabetes mellitus* with glycemic control bad is 40%.[7]

A major concern with infant delivery *macrosomic* is shoulder dystocia with the associated risk of permanent brachial plexus palsy. Shoulder dystocia occurs when the mother's pelvis is large enough to deliver the fetal head, but not large enough to deliver the shoulders of a fetus that is very large in diameter.[8]

The most common risk factor for babies born with *macrosomia* is diabetes mellitus experienced by the mother or

what is often called *gestational diabetes mellitus*. Diabetes is the most common medical complication of pregnancy. Patients can be separated into those with known pre-pregnancy diabetes (*overt* manifest) and those diagnosed during pregnancy (gestational).[8]

Several studies have shown that the weight of a newborn is influenced by various maternal factors, such as fetal constitutional, metabolic and genetic. Despite gestational glucose intolerance and *diabetes mellitus Gestationality* is a major factor in the birth ofbabies *macrosomic*, other research reports have shown that other maternal factors, such as maternal obesity, affect the weight of the newborn. Other risk factors that cause *macrosomia* include increased blood sugar levels during pregnancy, the sex of a male fetus, a history offetal labor *macrosomic*, increased gestational age, and smoking.[8]

Pregnant women with a history of giving birth to *macrosomia have a*5-10 times higher risk of having ababy again *macrosomic* than mothers who have never given birth to ababy *macrosomic.* The results of this study also show that the progeny *macrosomic* with gestational *diabetes mellitus* can be distinguished clearly in utero as characterized by a high growth rate of specialized insulin sensitive tissues including fat, heart, and subcutaneous liver.[8]

Management of pregnant women with *diabetes mellitus Gestational* therapy can be done in two ways, namely by therapy non pharmacological and therapy pharmacology. Non-pharmacological therapy consists of DM / MNT *(Medical Nutrition Therapy)*Diet, Diet / nutritional therapy, SMG (*Self Monitoring of Blood Glucose).* Pharmacological therapy consists of insulin, insulin is a polypeptide hormone consisting of 51 amino acids arranged in 2 chains, the A chain consists of 21 amino acids and the B chain has 30 amino acids.[9]

Based on a preliminary study conducted at 2 BPM (Independent Skill of Midwives), the Tanah Sareal Community Health Center in Bogor City on September 7, 2019 with a *survey* of baby birth data *macrosomic*, that in 2 BPM the work area of the Tanah Sareal Community Health Center, Bogor City in 2018-2019, was recorded the number of mothers giving birth at BPM Bidan Eka Budiarti, S.ST ,. Amd. Keb. In 2019 (January to September) as many as 134 mothers gave birth with babies born *macrosomic* 11with a history of diabetes there were 13 people in the mother. Meanwhile, in BPM Sri Utami, Amd. Keb. In 2018 to 2019, there were 266 mothers who gave birth, with the

number of babies born, *macrosomic* namely 21 babies with a history of diabetes in the mothers, there were 33 people. Total overall history of diabetes in the mother as many as 46 people in both the BPM and as many as 32 women with a history *of diabetes* gave birth to baby *Macrosomia* and the remaining 14 women with a history of diabetes does not give birth to a baby *macrosomia.*the remaining part of the total number of mothers who gave birth in both BPM mothers did not have a history of diabetes and gave birth to babies with normal weight.

Based on the above background, the researchers are interested in conducting research on the relationship of diabetes history in pregnant women with the incidence of *macrosomia* in the work area of the Tanah Sareal Health Center, Bogor City in 2019.

To determine the relationship of diabetes history in pregnant women withincidents *macrosomia* in the Work Area of the Tanah Sareal Health Center, Bogor City, 2019.

RESEARCH METHOD

This research is an *analytic survey that is a survey* or research that tries to explore how and why health phenomena occur. Then perform a dynamic analysis of the correlation between phenomena, both between risk factors and effect factors, between risk factors, and between effect factors regarding how risk factors are studied. The time approach used is *cross sectional*. Research design is a strategy to achieve what has been determined and acts as a guideline or research prosecution in the entire research process.[10]

This research method is carried out with theapproach *Cross Sectional* is a study to study the dynamics of the correlation between risk factors and effect factors, by means of an observational approach, using a checklist filled in by the researcher on the data obtained from the BPM and from related parties, namely mothers who have given birth in both BPM in the Work Area of Puskemas Tanah Sareal Bogor City and data collection at once at one time. The design of this study was to determine the relationship between the history of diabetes in pregnant women and the incidence of *macrosomia* in the Work Area of the Tanah Sareal Health Center in Bogor City in 2019.

This research was conducted in the Work Area of the Tanah Sareal Health Center, Bogor City on September 9, 2019. The population in this study were all mothers. giving birth at 2 BPM in the Work Area of the Tanah Sareal Community Health Center, Bogor City in

2019, totaling 200 mothers giving birth. The sampling method used in this research is *simple random sampling* or random with a lottery system. The sample taken is a population that has met the criteria.

The type of data in this study is in the form of secondary data, namely data collected by related agencies or agencies or not collected by the researcher himself and used by the researcher to complete and carry out research, namely data about the number of all mothers who gave birth in 2018-2019 who were in the Work Area of the Tanah Sareal Health Center, Bogor City.

Data analysis consisted of Univariate and Bivariate analysis. Univariate analysis was performed to obtain data descriptions in the form of frequency distribution and percentage of each independent variable, namely the history of diabetes in pregnant women and the dependent variable, namely the incidence of *macrosomia.* Bivariate analysis is carried out by connecting the independent variable with the dependent variable. The analysis carried out aims to have a statistically significant relationship. In this study, statistical hypothesis testing will be carried out using a test with theformulathe *Cramer's V,correlation* where bivariate analysis analyzesbetween a history of diabetes in pregnant women and the incidence of macrosomia in the work area of the Tanah Sareal Community Health Center, Bogor City in 2019.

RESEARCH RESULTS

This research was conducted in the working area of the Tanah Sareal Health Center, Bogor City. This research was conducted from 9 September to 13 September 2019 at 2 BPM in the Work Area of the Tanah Sareal Health Center, Bogor City. In this study the researchers looked at the data of all women giving birth based on medical record data to be research material. Collecting data, there were all 400 women giving birth in 2 BPM sareal lands, Bogor city, of the 400 women who gave birth as the research sample, there were 200 women giving birth, the measuring tool used a sheet *checklist*. This research was conducted to determine the Relationship History of Diabetes in Pregnant Bogor City in 2019.

Women with the Incidence of Macrosomia in the Work Area of the Tanah Sareal Health Center inThe results obtained in a study entitled The Relationship of Diabetes History in Pregnant Women with the Incidence of Macrosomia in the Work Area of the Tanah Sareal Health Center, Bogor City, 2019 is as follows:

Table 1
Frequency Distribution of Respondent Characteristics by Age of Pregnant Women in the Work Area of the Tanah Sareal Health Center, Bogor City in 2019

No	Age	Frequency	Percentage (%)
1	Age 21-29	52	26.0
2	Age 30-39	148	74.0
Total		200	100

Source : *IBM SPSS Statistics* 17.0

Based on data from Table 1, the frequency distribution of respondent characteristics based on age in pregnant women in the Work Area of the Tanah Sareal Health Center, Bogor City in 2019 shows the results of 200 respondents, as many as 148 respondents (74%) aged 30-39 years.

Table 2
Frequency Distribution of Diabetes History in Pregnant Women in the Work Area of the Tanah Sareal Community Health Center, Bogor City in 2019

No	History of *Diabetes Mellitus*	Frequency	Percentage (%)
1	There is a history of DM	46	23.0
2	There is no history of DM	154	77.0
Total		200	100

Source: *IBM SPSS Statistics* 17.0

Based on the data in Table 2, the Distribution of Frequency History of Diabetes in Pregnant Women shows the results of 200 respondents, there are 154 respondents (77%) who have no history of diabetes.

Table 3
Frequency Distribution of Macrosomia Incidents in the Work Area of the Tanah Sareal Health Center in Bogor City in 2019

No	Macrosomia Incidents	Frequency	Percentage (%)
1	Macrosomia	32	16.0
2	Non Macrosomia	168	84.0
	Total	200	100

Source: *IBM SPSS Statistics* 17.0

Based on the data in Table 3, the Frequency Distribution of Macrosomia Events shows the results of 200 respondents, there are 168 respondents (84%) with non-macrosomic baby weight.

Table 4 The
Relationship between Diabetes History in Pregnant Women and Macrosomia Incidence in the Work Area of Tanah Sareal Health Center, Bogor City, 2019

History of *DM*	Macrosomic events				Total		*P Value*	*OR (Odss Ratio)*
	Macrosomia		Non Macrosomia					
	F	%	F	%	F	%		
Have a history of diabete	32	16	14	7	46	23	0.000	0.304
No history of DM	0	0	154	77	154	77		
Total	32	16	168	84	200	100		

Source: *IBM SPSS Statistics* 17.0

Based on table 4, the Relationship of Diabetes History in Pregnant Women with Macrosomia Incidence of 200 respondents, 154 (77%) pregnant women did not have a history of diabetes and gave birth to non-macrosomic babies.

Thetest results *cramer* show a p value of 0.000 (*p value* <0.05), which means that Ho is rejected and Ha is accepted, so there is a relationship between Diabetes History in Pregnant Women and Macrosomia Incidence in the Work Area of Tanah Sareal Health Center, Bogor City in 2019. Odds Value The ratio is 0.304, which means that pregnant women with a history of diabetes have the opportunity to give birth to babies with macrosomia by 0.304 times greater than pregnant women who do not have a history of diabetes.

DISCUSSION

1. Univariate Analysis

Discussion is a gap that appears after the researcher conducts research and then compares the results of the study. This research is a research on the Relationship of Diabetes History in Pregnant Women with Macrosomia Incidence in the Work Area of Tanah Sareal Health Center, Bogor City in 2019.

a. Distribution of the frequency of history of diabetes in pregnant women in the Work Area of the Tanah Sareal Community Health Center, Bogor City in 2019

At the beginning of pregnancy, insulin and insulin development factors are the main determinants of fetal growth and fetal organ development. The production of insulin in the fetus, which begins between 8-10 weeks of gestation, is largely determined by the level of glucose in the mother, which is about 80% passed to the fetus through the placental membrane.[11] Mothers with offspring *of gestational diabetes mellitus* who have poor glycemic control are constantly exposed to high levels of glucose and insulin in the uterus, which can accelerate

fetal growth.[11] It is called gestational diabetes when the impaired glucose tolerance that occurs during pregnancy returns to normal within 6 weeks after delivery. Diabetes mellitus (not gestation) is considered if impaired glucose tolerance persists after delivery. In this group, the condition of diabetes is experienced temporarily during pregnancy. This means that diabetes or glucose intolerance is first seen during pregnancy, usually in the second or third trimester.[12] Gestational diabetes occurs at 24 to 28 weeks of pregnancy. Although diabetes during pregnancy is one of the risk factors for developing type II diabetes. This condition is a temporary condition in which blood sugar levels will return to normal after childbirth.[13]

Based on the results of the research, it shows that from the respondents in the work area of the Tanah Sareal Community Health Center, there are 154 respondents (77%) who do not have a history of DM in the work area of the Tanah Sareal Community Health Center, Bogor City.

The results of this study are comparable to research conducted by Heru Setiawan "The relationship between pregnant women with diabetes mellitus and the birth of macrosomia babies at RSAB Harapan Kita Jakarta in 2014" with a total of 30 respondents, 16 (51.7%) respondents did not have a history of DM.

From these data the researchers concluded that if pregnant women, especially those who have a history of diabetes during pregnancy, should reduce foods that are too sweet so that sugar levels are not too high.

b. Macrosmia Incidence in the Work Area of the Bogor City Health Center in 2019

Macrosomia is a baby born weighing> 4000 grams. The growth of fetuses *macrosomic* in the uterus tends to accelerate (after 38 weeks) whereas the growth of non-macrosomic fetuses is more linear during pregnancy. Pregnant women with a history of giving birth to *macrosomia have a* 5-10 times higher risk of having a baby again *macrosomic* than mothers who have never given birth to a baby *macrosomic.*[14]

Several studies have shown that the weight of the newborn is influenced by various maternal factors, such as fetal constitutional, metabolic and genetic. Despite gestational glucose intolerance and *diabetes mellitus gestational* is a factor that is the main cause of the birth of babies *macrosomia*, other research reports suggest that other maternal factors, such as maternal obesity, affect the weight of the newborn. Other risk factors that cause *macrosomia* include increased blood sugar levels during pregnancy, the sex of a male fetus, a history offetal labor *macrosomic*, increased gestational age, and smoking.[14]

Based on the results of the study showed that from the respondents in the working area of the Tanah Sareal Health Center, the results obtained from 200 respondents, there were 168 respondents (84%) with non-macrosomic weight babies in the working area of the Tanah Sareal Community Health Center, Bogor City.

The results of this study are comparable to research conducted by Idha Farahdiba "The relationship between a mother with diabetes and the birth of a macrosomic baby at Syekh Yusuf Gowa Hospital in 2018" with a total of 98 respondents, 80 (81.6%) respondents gave birth weighing < 4000. gram (non macrosomia).

From these data it can be concluded that macrosomia is a condition in which a baby is born with a weight> 4000 grams, the birth of a macrosomia baby is due to the mother's poor diet so that it causes diabetes in which mothers with a history of diabetes are very susceptible to birth of macrosomia babies or baby weight> 4000 gram. This requires the mother's knowledge of a good diet to prevent macrosomia by obtaining information from reading media about health, especially health in pregnant women.

2. Bivariate Analysis

a. The Relationship of Diabetes History in Pregnant Women with Macrosomia Incidence in the Work Area of the Bogor City Health Center in 2019

At the beginning of pregnancy, insulin and insulin development factors are the main

determinants of fetal growth and fetal organ development. The production of insulin in the fetus, which begins between 8-10 weeks of gestation, is largely determined by the level of glucose in the mother, which is about 80% passed to the fetus through the placental membrane.[14] Mothers with offspring *of gestational diabetes mellitus* who have poor glycemic control are constantly exposed to high levels of glucose and insulin in the uterus, which can accelerate fetal growth. Research has also shown that the growth of fetuses *macrosomic* in the uterus tends to accelerate (after 38 weeks) whereas non-macrosomic fetus growth is more linear during pregnancy. Pregnant women with a history of delivery have a *macrosomic* 5-10 times higher risk of re-giving birth babies *macrosomic* than mothers who have never given birth to babies *macrosomic.*[14]

Several studies have shown that the weight of the newborn is influenced by various maternal factors, such as fetal constitutional, metabolic and genetic. Despite gestational glucose intolerance and *diabetes mellitus Gestationality* is a major factor in the birth of babies *macrosomic*, other research reports have shown that other maternal factors, such as maternal obesity, affect the weight of the newborn. Other risk factors that cause *macrosomia* include increased blood sugar levels during pregnancy, the sex of a male fetus, a history of fetal labor *macrosomic*, increased gestational age, and smoking.[14]

Based on the cross-table about the results of statistical tests, the relationship between history of diabetes in pregnant women and the incidence of macrosomia in the work area of the Tanah Sareal Community Health Center, Bogor City in 2019, from 200 respondents, 154 (77%) pregnant women did not have a history of diabetes mellitus and gave birth to non-macrosomic babies . The test *Cramer's V* results obtained *p value* = 0,000, which means *p value* α <(0.05). This means that there is a correlation between the history of diabetes in pregnant women and the incidence of macrosomia in the work area of the Tanah Sareal Community Health Center, Bogor City in 2019.

This research is comparable to the research conducted by Arlia Oroh. "Relationship between Macrosomia and Gestational Diabetes Mellitus at the BLU Observation Section, Prof. DR.RD Kandou Manado in 2015 ", the results of the statistical test *Chi-Square* showed *p value* = 0.000, which means that there is a relationship between *gestational diabetes mellitus* and *macrosomia* in the BLU Obsgin Section of RSUP Prof. DR.RD Kandou Manado in 2015.

From the results of this study there are It can be concluded that the more mothers who have a history of diabetes during pregnancy, the higher the birth of macrosomic babies. Likewise, on the contrary, the more there is no history of diabetes in pregnant women, the lower the birth rate of macrosomic babies.

CONCLUSION

This chapter will present the results of the conclusions and suggestions of "The Relationship of Diabetes History in Pregnant Women in the Work Area of the Bogor City Health Center in 2019".

1. It is known that the distribution of the frequency of diabetes history in pregnant women in the Work Area of the Tanah Sareal Health Center, Bogor City in 2019, of the 200 respondents, there are 154 respondents (77%) who do not have a history of DM.
2. It is known that the distribution of the frequency of macrosomia occurrences in the Work Area of the Tanah Sareal Health Center, Bogor City in 2019, from 200 respondents, there are 168 respondents (84%) with non-macrosomic baby weight.
3. There is a relationship between a history of diabetes in pregnant women and the incidence of macrosomia in the Work Area of the Tanah Sareal Health Center, Bogor City in 2019 with *p value* = 0.000, which means *p value* < α (0.05). The Odds ratio value is 0.304, which means that pregnant women with a history of diabetes have the opportunity to give birth to a baby with macrosomia by 0.304 times greater that of pregnant women who do not have a history of diabetes.

SUGGESTION

1. For STIKes Wijaya Husada

   The results of this study are expected to be used as a reference for the development of science and further research on the relationship between diabetes history in pregnant women and the incidence of macrosomia.

2. For the Tanah Sareal Community Health Center, Bogor City.

   To become a reference for midwives & nurses for early treatment of pregnant women with a history of diabetes, patients should be handled according to the applicable standards and regulations.

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