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U N I V E R S I T A S   M U H A M M A D I Y A H   S E M A R A N G

# The Effectiveness of Posters as A Media for Monitoring and Stimulation of Children's Growth and Development

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## Abstract

Disorders of child growth and development have an impact on morbidity throughout the child's life cycle, transmission of poverty between generations and long-term effects that can hinder the pace of development of a country. Nevertheless, as recorded in the 2018 Early Childhood Development Index, more than 95% of early childhood children in Indonesia have physical and learning abilities that are appropriate for their age and stage of development. However, the development of numeracy literacy and emotional social skills are still below 70%. Thereby, knowledge, attitudes and behavior of parents were correlated with the level of stimulation of growth and development in children. Therefore, this mixed method pre-experimental study aimed to investigate the effectiveness of the "Healthy Child Poster" on the knowledge, attitudes and behavior of parents in monitoring and stimulating children's growth and development. One-Group Pretest-Posttest design was applied to test the sample determined by the Accidental Sampling technique following the specified inclusion criteria. The results showed an increase in the average values of knowledge, attitudes and behavior of mothers in monitoring child growth and development after being given healthy child posters. In addition, the mothers interviewed in this study found that the posters hung on the walls of their homes were always visible and reminding, thus helping them to easily understand the messages conveyed. Therefore, promotive and preventive strategies in monitoring and stimulating children's growth and development need to be improved to strengthen the knowledge, attitudes and behavior changes of parents.

**Keywords:** posters; children growth and development ; monitoring; stimulation

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## Introduction

The population of children makes up an immense portion of a nation's next generation. Particularly, the composition of children aged 0-5 years old makes up 21.6% of the total population of people aged 0-17 years (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak, 2019). Therefore, it is out of questions that children as development assets require large investments in health, education and welfare. Accordingly, the Indonesian government is committed to achieving the 2030 Sustainable Development Goals (SDGs) related to the growth and development of Indonesian children. The government furthermore sets the main targets for the growth and development of Indonesian children such as alleviating poverty in children, maintaining the condition of no child being malnourished and dying from incurable diseases, creating a child-friendly environment, fulfilling education for children, especially early childhood education and so forth (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak, 2019).

Both education and care given for children from birth to the age of 6 years determine and have a significant influence on the growth, development and learning potential of children in the future (United Nations Children's Fund, 2020). Several studies confirm that the developmental stage in the first 3 years of a child's life is the most important phase because it will determine the child's future (da Cunha et al., 2015; Ticusan, 2012). In addition, studies from various fields of science regarding the importance of early childhood growth and development on health and productivity throughout life (Ertem et al., 2018). Besides, Children who have good social and emotional development will gain the confidence and competencies needed to build relationships, solve problems and cope with emotions (Darling-Churchill & Lippman, 2016).

Delayed child's development is one of the problems that occur in low-middle income countries. Around 250 million children aged less than 5 years are at risk of not being able to achieve maximum development (World Health Organization, 2018). Despite the global insignificant figure, the achievement of Indonesia's Early Childhood Development Index (ECDI) in 2018 indicated a relatively good picture with a score of 88.30 on such dimensions as numeracy literacy, physical ability, social emotional ability and learning ability where each dimension has a strategic role in shaping ECDI. Surprisingly, according to a report from Statistics Central Bureau in 2020, more than 95% of early childhood have physical and learning abilities that suit their age ranges and development stages. However, achievements in the development

of numeracy literacy and social emotional abilities are still below 70% or 64.60 and 69.90 respectively (Badan Pusat Statistik, 2020). Disrupted growth and Development in children will inevitably contribute to morbidity throughout the child's life cycle, the transmission of poverty among generations. In which the long term can restrain the pace of development of a nation. Given that children are an important element for the sustainability of a nation and the state, creating a superior generation from an early age is absolutely necessary (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak, 2019).

Sanders and Cozier's research (2018), entitled "How do informal information sources influence women's decision-making for birth? A meta-synthesis of qualitative studies" found that As technological advances, various media are created, and information obtained from these media influence knowledge, increase one's awareness and encourage behavior. According to Sanders & Crozier, information obtained from either formal or non-formal education can have short-term and long-term effects resulting in changes or increases in knowledge (Sanders & Crozier, 2018).

Another study regarding the use of poster media for education by Ulya (2018) entitled "The Effect of Health Education with Media Posters on Knowledge of Hypertension Management in Hypertension Sufferers" found that Health education media used in this research were Posters. Ulya and colleagues define a poster as medium used to present information in a visual form and stimulate the sense of sight. In other words, its use aims to present information in an attractive and easy-to-understand form, and it can be also used as a reminder (Ulya et al., 2018). In addition, posters can be pasted in strategic places making it easier for passers-by to see and read them. To illustrate, when they read a poster many times, the information conveyed through the poster can be understood and is expected to increase knowledge and motivate the readers to follow the information contained in it (Da Costa, 2021; Oktavidiati et al., 2019; Ulya et al., 2018).

The results of previous research are in line with the research that I have done, that parents must possess the knowledge, attitudes, and behavior so that they can monitor and stimulate the growth and development in their children. Particularly, knowledge based-behavior would last

longer. Ideally, parents with sufficient knowledge have a strong commitment to provide the best education and stimulus for their children in terms of the quality and quantity of intensive meetings (Lulianthy et al., 2020). Therefore, for this reason, this study aims to investigate the effectiveness of posters of healthy children in order to increase knowledge, attitudes and behavior of mothers in independently monitoring and stimulating children's growth and development at home. The novelty of this study is that researchers make posters as a media for parents to monitor and stimulate growth and development in children at home. This media is expected to increase parental awareness and knowledge regarding growth and development as well as early detection of delays in child growth and development.

**Method**

The research design used in this study was a mix method research. The quantitative analysis used pre-experimental study with a One-Group Pretest-Posttest Design and qualitative analysis used phenomenological research. The group was given treatment and then the results were observed. The population in this study were all mothers who had children aged 3

months - 4 years in the working area of the Sungai Burung Village Health Center, Segedong sub-district, Mempawah Regency. The samples in this study were mothers who visited the *Posyandu*, Integrated Healthcare Center, in the working area of the Public Health Center of Sungai Burung Village, in Segedong sub-district, totaling 25 people. Sampling was carried out using an Accidental Sampling technique which means that the participants were involved based on the meeting by chance in the healthcare center. The respondent who happened to be present or available at the time of this study was carried out. Meanwhile, the participant-inclusion criteria consisted of some aspects such as (1) freely giving their consent, that they were willing to participate by their own will, (2) having children aged 3 months to 4 years old, (3) having ability to read and write, (4) parent(s) accompanying children at *posyandu*, it could be a mother or a father.

The research began with an introduction with mothers who happened to come to the Posyandu during the activity. Before conducting the pretest, the researchers distributed an informed consent form to each mother. They are given time to read and make a decision regarding participation. Afterwards, the researchers conducted a

pretest activity by distributing questionnaires to the mothers who had given their consent to participate in this study. The questionnaire was related to Monitoring and Stimulation of Growth and Development in Children, especially with the help of posters of healthy children. The activity ended with a sharing session as well as a question and answer session. This study was conducted for 3 months where observations were made on the use of posters as a medium for monitoring growth and development in children. In the next process, the use of healthy children posters was evaluated. In this regard, the evaluation was carried out with the help of *posyandu* cadres, and the researchers also directly engaged in a communication with the respondents.

The research data was then statistically tested using the Wilcoxon-signed rank test. That is to find out whether using posters of healthy children as an informative medium has an effect on test scores before and after the intervention.

**Result and Discussion**

1. Characteristics of Respondents

The data in table 1 (one) shows that of the 25 respondents, 64% of mothers aged 20-35 years and more than 80% are

housewives. While more than 50% are children over 1 (one) year old.

2. Knowledge, attitudes and behavior of respondents regarding growth and development of children

Table 2 (two) presents the increase in the average score on the knowledge, attitudes and behavior scores of respondents regarding monitoring and stimulation of growth and development in children after being given the Healthy Children Poster media. The p-value result is 0.000, which means that posters can effectively be used as a medium in increasing the knowledge, attitudes and behavior of mothers in monitoring their child's growth and development.

3. Using Posters to monitor children's growth and development

The results of interviews with respondents stated that the posters had been pasted and used, as stated in these following interview excerpts:

*"ya sudah bu, udah d isi smua" (Inf 2)* (Yes, it's been done mam, all has been filled in)

*"Iya kemarin sempat di tempel di dinding kamar, sama mereka kakak beradik di coret, saya sibuk di dapur." (Inf 6)* (Yes, yesterday it was actually pasted on the bedroom wall, (but) it was scratched by

the brothers and sisters, when I was busy in the kitchen)

The researchers also asked the informants whether they found it difficult to use and understand the posters as expressed in the following interview excerpts:

*"Alhamdulillah tidak bu. Biasa posyandu juga ada tanya jawab sama bidan tentang kesehatan anak-anak." (Inf 6)* (Alhamdulillah, it's not (difficult) ma'am. As usual at the posyandu, there is also a question and answer session with the midwife about the health of children).

*"Alhamdulillah tidak ada" (Inf 7)* (Alhamdullilah, there isn't any)

*"Alhamdulillah, Aman bu tanpa kendala" (Inf 8)* (Alhamdullilah, it's secured Ma'am without any obstacle)

In addition, the informants revealed that there are differences in behavior in monitoring children's growth and development using healthy child posters and the KIA (Maternal and Child Health) book:

*"Iya bu. Apa lagi setelah pulang dari posyandu, langsung liat grafik BB sama TB, ya alhamdulillah masih normal. Untuk saya pribadi poster ini sangat membantu dalam tumbuh kembang anak. Memang di buku panduan juga ada, cuma kalau buku kita harus punya waktu khusus buat baca, ya kalau poster tinggal di gantung di dinding setiap waktu bisa di liat." (Inf 6) (*Yes ma'am.

Especially, after returning from the posyandu, I immediately saw BB (weight) and TB (height) and thank God they were still normal. Personally, I feel that this poster is very helpful for children's development, it can also be found in manuals, but it requires special time to read it, while the poster can simply be hung on the wall, and can be viewed anytime).

*"Paling suka baca-baca jak bu. Apa yang belum dan udah dia bisa. Nggak. Buat pergi ke posyandu aja bukunya." (penggunaan Buku KIA) (Inf 4) (*I just really like reading, ma'am. What he hasn't and has done. Not just simply taking the book to Posyandu." (the use of MCH book))

*"Iye buk, jadi lebih tau lagi" (Inf 5)* (Yes ma'am, so, I know more)

*"Sebelum ade poster saya hanya cek perkembangan melalui posyandu setiap bulannya" (Inf 8) (*Before the poster, I only checked the progress through the Posyandu every month)

Growth and development in children is the main goal of the family and society. The first 3 years of a child's life is the most important developmental stage because this phase determines the future of a child (da Cunha et al., 2015; Ticusan, 2012). Government has been long involved in monitoring growth and development in children and has regulated policies related to that issue. However, there are still many

problems in its implementation. Knowledge, parental attitudes and behavior are crucial in order to be able to monitor and stimulate the growth and development in children. Meaning, parents with sufficient knowledge commit strongly to the efforts to give the best education and stimulus for their children in terms of the quality and quantity of intensive meetings (Lulianthy et al., 2020).

The results of the analysis showed that there was an increase in knowledge, attitudes and behavior of mothers in monitoring child's growth and development. This is indicated by the differences in the average scores of parents' knowledge, attitudes and behavior after using the Healthy Children poster as a medium of information.

The results of the interviews also support the results of data analysis. Respondents stated that on average, parents have not used the child development monitoring book optimally. In addition, monitoring books are mostly used for recording immunizations or posyandu visits. The findings of this study confirm previous research findings which state that the Child Health Card has not been used as a monitoring tool for children's health, growth and development. Over time,

preventive visits were gradually replaced by visits due to health problems (Abud & Gaíva, 2015; De Almeida et al., 2016; Lulianthy et al., 2020; Rambe & Sebayang, 2020). Meanwhile, respondents admitted that with posters they frequently monitor and stimulate their child's growth and development. Because the posters are affixed to the walls of the house, it is always easy for mothers to see when they are on the move.

Similarly, the results of this study affirm the findings by other studies that posters used as an informative medium has a positive influence on a person's knowledge, attitudes and behavior. The results of Michelle E. Lee's research (2021) entitled "What's in Your Drink? Poster Educates Families About Sugar Content and Fatty Liver Disease" found that the use of educational posters in clinics can increase awareness of the sugar content in drinks and most of the respondents reported an intention to reduce consumption of sweet drinks in children (Lee et al., 2021). Furthermore, a study by Suriadi (2017) found that using posters as a medium to inform elementary students at SDN 003 Palaran City of Samarinda about diarrhea prevention significantly affected knowledge of the students (Suriadi & Kurniasari, 2017).

Likewise, Zainal and colleagues in their study (2021) found that there was a difference in pre-test means 52.1 SD 5.332 and post-test means 87.4 SD 12.351 with an average difference of 7.019 knowledge. This shows that there is a difference in the average difference between knowledge before treatment and after treatment with the poster education method (Munir et al., 2021).

Posters can be a preventive medium in the world of health. Using eye-catching images and easy phrases posters can easily communicate and convey the message to target audience. That posters with visual elements in the form of lines, pictures and words, it is expected to attract the interest and attention of the target to read the information (Abqari et al., 2022; Caris et al., 2018; Horn et al., 2022; Sumartono & Astuti, 2018). Besides, posters can be pasted in strategic places making it easier for someone to see and read. To illustrate, if someone reads a poster many times, the information conveyed through the poster can be understood and is expected to increase knowledge and motivate the person to follow the information contained in it (Da Costa, 2021; Oktavidiati et al., 2019; Sumartono & Astuti, 2018; Ulya et al., 2018).

Parental knowledge, according to Susilawati and colleagues, correlates with the level of stimulation for growth and development in children, where the higher the knowledge is, the more often parents monitor the growth and development of children, and vice versa (Susilawati et al., 2017). In line with the research findings above, the results of interviews in this study found that with the poster media, parents became more concerned about their child's growth and development. In particular, posters help mothers recognize and understand the process of child growth and development. They also know what should be stimulated, especially, because the stages of child development are grouped according to age. Therefore, the use of posters as a medium for parental education about the growth and development of their children is expected to increase the knowledge, attitudes and behavior of parents in monitoring their child's growth and development independently at home.

**Table 1**.Respondents Characteristics

| Respondents Characteristics | Number | % |
|---|---|---|
| Mother's Age | | |
| < 20 yo | 1 | 4 |
| 20 – 35 yo | 16 | 64 |
| > 35 yo | 8 | 32 |
| Mother's Occupation | | |
| Housewife | 22 | 88 |
| Private employee | 1 | 4 |
| Civil Servant | 1 | 4 |
| Others | 1 | 4 |
| Mother's Educational Background | | |
| Elementary School | 8 | 32 |
| Junior High School | 7 | 28 |
| Senior High School | 9 | 36 |
| Graduate Degree (s) | 1 | 4 |
| Child's Age | | |
| <1 yo | 12 | 48 |
| >1 yo | 13 | 52 |
| Total of Respondents | 25 | 100 |

**Table 2**. Knowledge, Attitudes, Behavior of Parents regarding Monitoring and Stimulating Child's Growth & Development

| | N | Mean Rank | Z | Asymp. Sig. (2-tailed) |
|---|---|---|---|---|
| Knowledge | | | | |
| Pre – Post test | | | | |
| *Negative Ranks* | 0[a] | 0.00 | -4.394 | 0.000 |
| *Positive Ranks* | 25[b] | 13.00 | | |
| Attitude(s) | | | | |
| Pre – Post test | | | | |
| *Negative Ranks* | 0[a] | 0.00 | -4.378 | 0.000 |
| *Positive Ranks* | 25[b] | 13.00 | | |
| Behavior | | | | |
| Pre – Post test | | | | |
| *Negative Ranks* | 0[a] | 0.00 | -4.429 | 0.000 |
| *Positive Ranks* | 25[b] | 13.00 | | |

## Conclusion

The results of this study indicate that there is an increase in the average values of knowledge, attitudes and behavior of mothers in monitoring children's growth and development after being given a healthy child poster. Therefore, health promotion strategies regarding monitoring and stimulation of children's growth and development need to be improved to strengthen parents' knowledge, attitudes and behavior changes. Given that the use of the appropriate media can make it easier for parents to access the latest information, this information delivery technique is worth implementing by the government, policy makers, health workers, the community and

parents, especially in the field of child health in West Kalimantan in particular and in Indonesia in general. Moreover, with various preventive media, the government, health workers, the community and parents can prevent the failure of children's growth and development by continuously monitoring the health, growth and development of children, anywhere and anytime, without limitations of space and time.

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# Overview of Mental Health of Pregnant Women in Yogyakarta

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## Abstract

PSD (pregnancy-specific distress) is a distress condition regarding physical symptoms during pregnancy, changes in body shape, changes in interpersonal relationships with other people, childbirth, baby's health, how to care for a newborn, and the risks of medical treatment being carried out. higher PSD, the risk of preterm birth and LBW increases. The mental health of pregnant women in Yogyakarta is in the normal category. Health workers and family support play an important role in reducing anxiety to depression in pregnancy.

**Keywords**: mental health; pregnant women

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## Introduction

Pregnancy is the growth and development of the intrauterine fetus starting from conception and ending until the onset of labour. This period of pregnancy is a happy moment for a mother but can also be a period full of vulnerability for some women(Manuaba & IA Chandranita Manuaba, 2010). About 15 percent of women have the potential to experience depression or anxiety during pregnancy. Depression is a mood or feeling disorder, the feeling disorder experienced often interferes with the activities of the individual(Andajani-Sutjahjo et al., 2007).

PSD (pregnancy-specific distress) is a condition of distress regarding physical symptoms during pregnancy, changes in body shape, changes in interpersonal relationships with other people, the delivery process, baby's health, how to care for babies who are born, and the risks of medical treatment performed(Caestara et al., 2019). The higher the PSD, the higher the risk of premature birth and LBW(Cannella et al., 2013;Alderdice et al., 2013).

A study in England conducted by King's College London revealed that one in four women experience mental health problems during pregnancy. 11% had depression, 15% had anxiety, 2% had an eating disorder, and 2% had obsessive compulsive disorder, and the others had a combination of disorders(Alex, 2018).

Some of the things that trigger the occurrence of PSD in pregnant women include a family history of similar mental problems, economic pressure, unmeet need, partner violence and disturbances in the fetus. PSD in pregnant women has an impact on the fetus such as low birth weight and premature birth and has an impact on the fulfillment of breastfeeding after delivery(Gelaye et al., 2016). Teenage mothers, middle to lower economic groups, low education levels and working pregnant women are also vulnerable to depression in pregnancy(Sanguanklin et al., 2014).

Mental health indicators are severe mental disorders, emotional mental disorders, and the scope of treatment. The prevalence of severe mental disorders in the city of Yogyakarta based on the results of the 2017 IDHS is 2.14 per mil and the prevalence of mental emotional disorders is 11.4%. Of the 3.5 million residents of DIY, around 12,300 people have mental disorders. This disorder can progress to become a more serious disorder if it is not treated successfully. Emotional mental disorders do not become more severe if the person experiencing them can get treatment as early as possible at

the health service center. The Yogyakarta City Health Office provides psychological services at primary health facilities in 18 Community Health Centers. Early detection at the Puskesmas is very important to identify mental disorders(IDHS, 2017).

## Method

Research Design: This research is a quantitative research. Using a descriptive method with a cross sectional research design.

Samples in the study of pregnant women in trimesters I, II and III who made ANC visits at Independent Practices in the Yogyakarta area (Yogyakarta City, Bantul, Sleman, Kulonprogo, Gunung Kidul), had no pregnancy complications and were willing to be respondents by signing an informed consent sheet. 10 respondents were taken from each region, but there were 3 respondents who did not complete the questionnaire so that the number of respondents became 47.

The data collection tools in this study consisted of socio-demographic data and the Indonesian version of the NuPDQ Prenatal Distress Questionnaire which had been tested for reliability and validity.(Santoso, 2018).

The NuPDQ measuring tool was developed by Lobel (2008), is a unidimensional measuring tool that measures PSD (Pregnancy specific distress). The NuPDQ contains statements regarding the feelings of pregnant women (disturbed, sad, worried) related to aspects of pregnancy such as medical care, baby care, changes in body shape, relationships with other people, childbirth, and baby's health(Lobel et al., 2008).

## Result and Discussion

The majority of respondents in this study were aged between 20-35 years (91%), primipara (51%), graduated from high school (30%) and worked as housewives (53%).

**Table 1.** Respondent Demographic Data

| Demographic Data | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| 20-35 | 43 | 91% |
| >35 | 4 | 9% |
| **Parity** | | |
| Primipara | 24 | 51% |
| Multipara | 23 | 49% |
| **Education** | | |
| junior high school | 9 | 19% |

| | | |
|---|---|---|
| high school | 14 | 30% |
| D3 | 7 | 15% |
| S1 | 12 | 26% |
| S2 | 5 | 11% |
| **Profession** | | |
| Housewife | 25 | 53% |
| Private employees | 16 | 34% |
| Self-employed | 5 | 11% |
| civil servant | 1 | 2% |

According to the Regulation of the Minister of Health Number 97 of 2014 the best pregnancy and the lowest risk are between 20-35 years old(Regulation of the Minister of Health No. 97 Concerning Pre-pregnancy, Pregnancy, Childbirth and Postpartum Health Services, Implementation of Contraception Services, and Sexual Health Services, 2014).

The emotional, psychological and social needs of pregnant women are greater than those of women who are not pregnant(World Health Organization (WHO), 2012)

**Table 2**. Respondents' NuPDQ Scores

| NuPDQ value | |
|---|---|
| 0-17 | ≥18 |
| 46 | 1 |

**Table 3**. Lowest and Highest NuPDQ Scores

| NuPDQ value | | |
|---|---|---|
| Lowest | Highest | Average |
| 0 | 18 | 5,9 |

Based on table 2, the mental health conditions of pregnant women in Yogyakarta are in the normal category, only 1 respondent (0.021%) has a mental disorder according to the results of completing the NuPDQ questionnaire.

Research in Japan shows that depression or anxiety occurs in 10-20% of pregnant women. These disorders can affect the health of mother and child(Ibanez et al., 2015).

The prevalence of antenatal psychological problems is estimated to be high worldwide. Studies have shown that the prevalence of antenatal depression or anxiety ranges from 8% to 30%.(Satyanarayana et al., 2011).

Research in Turkey states that most pregnant women in Turkey experience depression and worry about preterm labor, having an unhealthy baby, labor and delivery because they feel tired and have low energy during pregnancy.(Yuksel et al., 2014).

In Indonesia, pregnant women who experience PSD include being pregnant out of wedlock, chronic illness in the family, problems in the household, lack of support from a partner or family, partner unemployment, and insufficient family income, which requires pregnant women to work.(Andajani-Sutjahjo et al., 2007). A study by Sanguanklin et al (2014) states that tension at work in pregnant women can trigger depression during pregnancy and after childbirth.

Non-psychotic depressive episodes in women with mild to severe severity, are one of the main contributors to pregnancy-related morbidity and mortality. Maternal depression (antepartum or post partum) has been associated with negative health-related behaviors and adverse outcomes, including psychological and developmental disorders in infants, children, and adolescents. Despite the enormous burden, depression in mothers in low- and middle-income countries is still under-treated(Gelaye et al., 2016).

About 10 percent of women suffer from depression during pregnancy, the number varies according to the woman's individual history, socioeconomic factors and exposure to stressors. Maternal depression, anxiety, and stress during pregnancy are associated with poor fetal development and poor birth outcomes, including preterm birth and low birth weight (LBW). Children born prematurely or LBW are at risk of experiencing emotional or cognitive problems, including an increased risk of attention deficit/hyperactivity, anxiety, or language delays. In addition, stress in pregnant women in the early trimester will affect brain function with permanent changes in neuroendocrine regulation and behavior. on offspring. These changes can

affect a child's cognitive and emotional processes.(Ibanez et al., 2015).

The role of health workers and families greatly influences the continuity of the birth process, Zulala and Herfanda's research (2020) states that the mother's expectations for maternal care by midwives during the delivery process in Yogyakarta City include 3 main factors, namely the comfort of the delivery process, the safety of delivery and support during the process labor(Zulala & Herfanda, 2020)

Family support and workplace support greatly affect the reduction of PSD in pregnant women(Sanguanklin et al., 2014). Family support plays a very important role in reducing PSD in pregnant women which also reduces the risk of LBW and reduces the risk of neonatal death, delivery by Sectio Caesaria, length of stay in hospital and reduces the risk of postpartum depression(East et al., 2019).

The government through PMK No. 97 of 2014 states that the Indonesian government provides an Integrated Service Center (PPT) for victims of violence, both physical and psychological violence in mothers during the life cycle, handled in a comprehensive manner by multidisciplinary under one roof (one stop services).

## Conclusion

Mental health of pregnant women in Yogyakarta is in the normal category. The support of health workers and families plays an important role in reducing anxiety and depression in pregnancy.

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# Relationship of Relactation with Mother's Breastfeeding in Sembung Village, Narmada District, West Lombok Regency

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## Abstract

Exclusive breastfeeding can help babies achieve optimal growth, development and health. From the data obtained at the Indonesian Ministry of Health in 2017, the coverage of exclusive breastfeeding in the NTB region was 77%, still lagging behind the national coverage of 80%. The highest coverage is in the West Lombok Regency area of 95.8%. Relactation is an attempt to start breastfeeding again after some time has stopped. Relactation aims to change the attitude of mothers to breastfeed their babies again with breast milk. The purpose of this study was to determine the relationship between relactation and breastfeeding for breastfeeding mothers who have children aged 0-2 years in Sembung Village, Narmada District, West Lombok Regency, West Nusa Tenggara in 2020. The research design used in this study was descriptive-analytic with a cross approach. sectional. The population in this study were breastfeeding mothers, with the sample being breastfeeding mothers who had children aged 0-2 years. The number of samples is 30 people, and the sampling method is Purposive Sampling. The data analysis techniques used were univariate and bivariate using the Chi Square test. The results showed that most of the relactation of breastfeeding mothers who had children aged 0-2 years without tools was 24 respondents (80.0%) and breastfeeding was mostly disrupted by 16 respondents (53.3%). There is no statistically significant relationship between relactation and breastfeeding in breastfeeding mothers who have children aged 0-2 years (p value 0.855 > 0.05). Health workers should be able to provide support and motivation on an ongoing basis to be able to achieve successful relactation in breastfeeding mothers.

**Keywords** : relactation, exclusive breastfeeding

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## Introduction

According to WHO, exclusive breastfeeding is a process when a mother breastfeeds exclusively without giving any food other than breast milk except medicine for the first six months. Exclusive breastfeeding can help babies to achieve optimal growth, development and health because breast milk contains the most suitable and perfect nutrients for babies. Exclusive breastfeeding in Indonesia has been regulated in RI Government Regulation No. 33 of 2012, but the practice of breastfeeding is still relatively low. According to the results of Riskedsa (2018), the proportion of exclusive breastfeeding for infants aged 0-5 month in Indonesia by 37.5%. Meanwhile, the lowest proportion was in the Province of West Nusa Tenggara (NTB) at 20.3%. From the data obtained at the Indonesian Ministry of Health in 2017, the coverage of exclusive breastfeeding in the NTB region was 77%, still lagging behind the national coverage of 80%. The highest coverage is in the West Lombok Regency area of 95.8%. The results of a preliminary study in Sembung village, Narmada sub-district, West Lombok district, found that the number of children aged 0-2 years was 58 people.

The results of Mamonto's research in (2015), showed that the mother's attitude was a factor in providing exclusive breastfeeding. One of the efforts made to overcome this problem is relactation. Relactation is an attempt to start breastfeeding again after some time has stopped. Relactation aims to change the attitude of mothers to breastfeed their babies again with breast milk. The success of relactation is influenced by several factors including education, education, mother's age, baby's age, stimulation and support from health workers (Sartika, 2012).

The natural disasters of the earthquake that hit Lombok in 2018 to 2019 had an impact on the success of breastfeeding to babies in the affected areas. In supporting the process of successful breastfeeding in emergency situations, especially in the presence of natural disasters, the government and all institutions must have the latest policies that can be adequate and discuss promotion and support for breastfeeding, management of artificial feeding, complementary foods, nutritional needs of pregnant and lactating women, meet the provisions of the International Code on Marketing of Breast Milk Substitute Products and the World Health Assembly Resolutions that follow it, prevention and management of donations of breast milk substitutes, and infant feeding in the context of public health in emergencies and extraordinary events of infectious diseases. One of the efforts made is lactation (Unicef, 2017). The results of Mary's research (2011), stated that lactation can increase the success of breastfeeding which was stopped due to emergency situations (Muresan, 2011).

According to Mehta's research (Salih, 2018). The success of lactation is influenced by several factors including the level of maternal understanding of lacttion, the motivation of various parties, especially families and health workers (Muresan, 2011) (Susanto & Rahmawati, 2015)(Cazorla-Ortiz et al., 2020). In addition, most of the mothers who do lactation are mothers in the lower middle class and with a low level of education (Montoya et al., 2020). The level of stress experienced by the mother will also affect the success rate of lactation (Claudine Prudhon, 2016). Research study no. 8 proves that more research is needed on

lactation efforts carried out by the method of administering drugs for lactation efforts. However, from the content of carbohydrates and calcium, it is proven that there is an increase in the amount of levels of breast milk. (Campbell-Yeo et al., 2010)(Lommen et al., 2015) The need for a loving relationship between mother and baby can support the success of breastfeeding.

## Method

The research design used in this research is descriptive analytic with a cross sectional approach (Sastroasmoro, 2014). The population in this study were breastfeeding mothers in the village of Sembung, Narmada District, West Lombok. Total population of 58 people. The sample in this study were breastfeeding mothers who had children aged 0-2 years in Sembung Village, West Lombok Regency. The sampling technique was purposive sampling. The sample size was 30 people. According to Sugiyono (2012), in experimental research, the appropriate sample size in research is 30 to 500 with a minimum sample standard of 30 samples.

## Result and Discussion

### 1. Relactation Mother breastfeeding children aged 0-2 years in Sembung Village, Narmada District, West Lombok Regency

Table 1. Relactation Mothers who have children aged 0-2 years in Sembung Village, Narmada District, West Lombok Regency

| Relactation | Amount | Percentage (%) |
|---|---|---|
| With Tools | 6 | 20.0 |
| No Tools | 24 | 80.0 |
| Total | 30 | 100.0 |

Based on table 1, the distribution of respondents based on the results of relactation, the majority of mothers chose relactation without tools as many as 24 respondents (80.0%) and relactation with tools as many as 6 respondents (20.0%). According to Unicef (2018), relactation techniques consist of use with and without aids. Techniques that use assistive devices such as using dropper drops and feeding tubes. Meanwhile, the relactation technique without aids is the use of drugs to increase milk production. Relactation with assistive devices will require knowledge of the mother, motivation and that support strong for success. The stages of relaxation with tools require several steps to be carried out. Meanwhile, relactation without tools does not require many stages, just following the rules of taking medication. So that more samples choose relactation without tools.

Based on research conducted by Sartika (2012),states that the factors that influence the

success of relactation include mother's knowledge, mother's motivation and the support of health workers. The use of the relactation method with assistive devices for

breastfeeding can increase prolactin levels in nursing mothers who experience problems with breastfeeding (Cluet de Rodríguez et al., 2014).

## 2. Relactation Mother breastfeeding children aged 0-2 years in Sembung Village, Narmada District West Lombok Regency

Table 2. Breastfeeding for breastfeeding mothers who have children aged 0-2 years in Sembung Village, Narmada District, West Lombok Regency

| Breastfeeding | Amount | Percentage (%) |
|---|---|---|
| Disturbed | 16 | 53.3 |
| Not distrubed | | 46.7 |
| | 14 | |
| Total | 30 | 100.0 |

Based on table 2, the distribution of respondents based on the results of breastfeeding, the majority of mothers who breastfeed were disturbed by 16 respondents (53.3%) and breastfeeding was disrupted by 14 respondents (46.7%). According to Maryunani (2015), problems in breastfeeding that cause breastfeeding to be disrupted include stress factors on the mother, flat or immersed nipples, small amounts of milk, blocked milk ducts, sore nipples, swollen breasts and mastitis. To be able to increase the success of breastfeeding is influenced by several factors, namely the mother's knowledge, physical and psychological

condition of the mother, family support, health service support, and environmental support.

Based on Fahriani research's (2016), factors that influence breastfeeding are maternal psychological factors, family support, knowledge about exclusive breastfeeding, and breastfeeding counseling. This research is in line with research by Astuti (2013), which states that the role of parents is the most dominant factor in exclusive breastfeeding after being controlled by the variables of education, work, attitudes, the role of officers, media exposure and the role of the husband.

## 3. The Relationship between Relactation and Breastfeeding in Sembung Village, Narmada District, West Lombok Regency

Table 3. The Relationship between Relactation and Breastfeeding in Sembung Village, Narmada District, West Lombok

| Relactation | Breastfeeding | | | | Total | P-value |
|---|---|---|---|---|---|---|
| | Disturbed | | Not distrubed | | | |
| | N | % | N | % | | |
| With Tools | 3 | 50.0 | 3 | 50.0 | 6 | 0.855 |
| No Tools | 13 | 54.2 | 11 | 45.8 | 24 | |
| Total | 16 53.3 | | 14 | 46.7 | 30 | |

Table 3 shows that 13 samples (54.2%) of relactation without breastfeeding equipment were disrupted, with the results of the chi square analysis which stated that there was no statistically significant relationship between relactation and breastfeeding in breastfeeding mothers who had children aged 0-2 years (p value 0.855 > 0.05). Relactation is one of the efforts made to overcome problems that occur in the breastfeeding process which results in disrupted breastfeeding. Factors that influence the success of relactation are maternal factors, baby's age, motivation, breast stimulation, baby separation period, medication and support that is carried out continuously (Unicef, 2018).

Based on the results of Masita's research (2019), states that the success of relactation is determined by continuous assistance from health workers. In addition, sufficient knowledge is needed for breastfeeding mothers to carry out relactation (Dwi Masita & Maimunah, 2019). This research is in line with Sartika (2012), stating that the success of relactation is influenced by the knowledge, motivation and support of health workers. Breastfeeding mothers who experience problems in breastfeeding, the success of relactation is not determined by relactation techniques either with tools or using drugs, but it is necessary to provide proper counseling by trained personnel and support from both family and health workers (Mehta et al., 2018).

## Conclusion

Relactation of mothers breastfeeding children aged 0-2 years is mostly without tools as many as 24 respondents (80.0%) and breastfeeding for breastfeeding mothers is mostly disturbed by 16 respondents (53.3%). There is no statistically significant relationship between relactation by breastfeeding mothers who have children aged 0-2 years (p value 0.855 > 0.05). Thus, it is necessary for health workers to be able to provide support and motivation on an ongoing basis to be able to achieve successful relactation in breastfeeding mothers.

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# Development of Instruments Test to Detect Diabetes Mellitus in Pregnancy

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## Abstract

Background: Diabetes mellitus in pregnancy is a disorder of carbohydrate tolerance that results in hyperglycemia which is characterized by polyuria, polydipsy, and polyphagia. Pregnant women with DM in pregnancy are associated with high morbidity and mortality. Early detection of DM in pregnancy is important so that further treatment can be done. There is no test instrument that can be used to detect DM in pregnancy. Obtain a test instrument to detect the symptoms of Diabetes Mellitus in pregnancy. Method: The type of research used is R&D (Research and Development). Development research conducted to produce a product in the form of an early detection instrument for diabetes mellitus in pregnancy. The study was conducted by providing early detection instruments for Diabetes Mellitus in pregnancy in first trimester pregnant women and then examining fasting blood sugar in first trimester pregnant women. The number of samples in the study 119 taken by Purposive Sampling technique. Analysis of data using the value of sensitivity, specificity, and accuracy. Result: The test instrument consisted of 13 questions, with a sensitivity value of 72.41%, a specificity value of 91.11%, and an accuracy value of 86.55%.. Conclusion: Early detection instruments for diabetes mellitus in pregnancy can be used as standard guidelines for antenatal care in pregnant women and can be used as an alternative to detect DM in pregnancy before supporting examinations by midwife professionals can be further developed research development using standard methods for measuring blood sugar more accurately and The research was carried out by measuring the precision value so that the instrument produced accurate and consistent results.

**Keywords**: early detection, diabetes mellitus in pregnancy, sensitivity, specificity, accuracy

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## Introduction

Diabetes mellitus in pregnancy is a disorder of carbohydrate tolerance that results in hyperglycemia characterized by polyuria, polydipsy, and polyphagies. Pregnancy in women with DM is associated with high morbidity and mortality. Around 21.3 million or 16.2% of births in 2015 in the world showed signs of hyperglycemia or high blood sugar levels during pregnancy and 85.1% were caused by Diabetes Mellitus in pregnancy, whereas in Indonesia as many as 1.9-5% of all pregnant women experience diabetes mellitus in pregnancy (PERKENI, 2015)(Negrato et al., 2012)(Federation, 2017)(Sunjaya & Sunjaya, 2018).

The frequency of diabetes mellitus in undiagnosed pregnancies is 10-25%, this increases the morbidity and mortality rates for both mother and baby. Complications or problems arising from diabetes mellitus in pregnancy are babies born with macrosomia, birth trauma, labor induction or caesarean section, premature birth, pre-eclampsia, hypoglycemia in neonates, hyperbilirunemia in neonates and perinatal death. Complications that can occur in the future are the risk of type 2 diabetes and the risk of diabetes mellitus in pregnancy in future pregnancies (Indonesia, 2013)(Hunt et al., 2014)(Bachaspati, 2018).

The complications that will arise from Diabetes Mellitus in an undetected pregnancy will be very dangerous for both the mother and the baby to be born. Good control during pregnancy of diabetes mellitus in pregnancy will control blood glucose so that complications can be prevented. Early detection of increased glucose levels in pregnancy by pregnant women is still low because of the lack of ability of pregnant women to make early detection. Detection of blood glucose levels can only be done using medical devices or by laboratory examinations based on indications, as it is known that blood glucose level testing is an important procedure in antenatal care checks in Indonesia, so the incidence of Diabetes Mellitus in pregnancy is often hard to find and lack attention (Rahmawati et al., 2016)(Kudarti dkk, 2014)(Sulistiyah, 2017).

Early detection of a disease with a diagnostic test results in an accurate instrument. Instruments with diagnostic tests are reflected by the values of sensitivity, specificity, and accuracy so that

it is needed to detect diabetes mellitus in pregnancy in pregnant women. Instruments that have high sensitivity, specificity, and accuracy values will be able to detect DM in pregnancy so that it can be used by midwives for screening as an effort to prevent diabetes mellitus in pregnancy in trimester I pregnant women. In a study conducted by Perovic, 2012 which resulted in a high sensitivity value of 90.9% indicating that the Ultrasound Gestational Diabetes Score (UGDS) is a good predictor for detecting diabetes mellitus in pregnancy, this tool has a sensitivity value above 90% due to the method used using ultrasound which is known to have high accuracy. Then in research conducted by Imamah, 2017 showed that 38 pregnant women out of 80 pregnant women who were examined turned out to have high risk factors for hyperglycemia in pregnancy but this research was carried out using a screening questionnaire only (Perović et al., 2012) (Imamah, 2017)

So that there are no test instruments to determine the symptoms of Diabetes Mellitus in pregnant women in Indonesia, so it is necessary to develop an innovation of the instrument used as a means of early detection of Diabetes Mellitus in pregnancy. The renewal of this paper is the development of an instrument for early detection of diabetes in pregnancy by using blood sugar checks and tools that have good sensitivity, specificity and accuracy.

Method

The research design used in this research and development (R&D) research with a descriptive approach where the research method is used to produce products in the form of instruments and test the effectiveness of the instrument's products.

The study was conducted from December 2019 to January 2020. The population in the study were all pregnant women in the city of Bengkulu.

Population reference in this study is pregnant women in Bengkulu city. The sample in this study was first trimester pregnant women who met the inclusion criteria which amounted to 119 samples with a sampling technique using Nonprobability Sampling where to use Purposive Sampling.

## Result and Discussion

### 1. Characteristics of Respondents

The results of the analysis of the research conducted were the distribution of characteristics of first trimester pregnant women registered in the register of each puskesmas working area in Bengkulu City. The description of the distribution of each of the instruments is presented in tabular form as follows:

**Table 1**. Distribution of Characteristics of TM I Pregnant Women with Gestational Diabetes Mellitus Risk (n = 119)

| No | Karakteristik | F | % |
|----|---------------|-----|------|
| 1 | Usia | | |
| | < 20 | 6 | 5,1 |
| | 20-35 | 105 | 88,2 |
| | >35 | 8 | 6,7 |
| 2 | Pendidikan | | |
| | SMP | 21 | 17,6 |
| | SMA | 50 | 42,1 |
| | Perguruan Tinggi | 48 | 40,3 |
| 3 | Usia Kehamilan | | |
| | 1-4 minggu | 3 | 2,5 |
| | 5-8 minggu | 40 | 33,6 |
| | 9-12 minggu | 79 | 63,9 |

Table 1 shows the characteristics of the majority of respondents in this study occupying a healthy reproductive age, then the characteristics of the level of education of middle and higher education respondents, then the characteristics of respondents at the age of the majority of pregnancy in the last trimester I.

### 2. Sensitivity Test

The results of the study obtained the value of the sensitivity of Diabetes Mellitus in pregnancy early detection instruments as follows:

**Table 2**. Table Sensitivity Test

| Gold Standard Test | Risk Factor Instrumens | | Total |
| --- | --- | --- | --- |
| | Risk | No Risk | |
| Positive (≥126 mg/dl) | 21(a) | 8 (b) | 29 (a+b) |
| Negative (<126 mg/dl) | 8 (c) | 82 (d) | 90 (c+d) |
| Total | 29 (a+c) | 90 (b+d) | 119 (a+b+c+d) |

Note : a. True Positive (TP) = 21 b. False Positive (FP) = 8 c. False Negative (FN) = 8 d. True Negative (TN) = 82

The results of table 2 sensitivity value is 72.41%, which is obtained from the calculation of the number of pregnant women who have a risk of DM in pregnancy and the results of fasting blood sugar examination ≥126 mg / dl compared to all pregnant women who are at risk of Diabetes Mellitus in pregnancy.

3. Specificity Test

The results obtained for the specificity of the early detection instrument for Diabetes Mellitus in pregnancy are as follows:

**Table 3**. Specificity Test

| Gold Standard Test | Risk Factor Instrumens | | Total |
| --- | --- | --- | --- |
| | Risk | No Risk | |
| Positive (≥126 mg/dl) | 21 (a) | 8 (b) | 29 (a+b) |
| Negative (<126 mg/dl) | 8 (c) | 82 (d) | 90 (c+d) |
| Total | 29 (a+c) | 90 (b+d) | 119 (a+b+c+d) |

Note : a. True Positive (TP) = 21 b. False Positive (FP) = 8 c. False Negative (FN) = 8 d. True Negative (TN) = 82

The results of table 3 specificity value is 91.11%, which is obtained from the calculation of the number of pregnant women having no risk of diabetes mellitus in pregnancy and the results of fasting blood sugar <126 mg / dl compared with the total number of pregnant women who do not have diabetes risk Melitus in pregnancy.

4. Accuracy Test

The results obtained for the accuracy of early detection instruments for Diabetes Mellitus in pregnancy risk are as follows:

**Table 4**. Accuracy Test

| Gold Standard Test | Risk Factor Instrumens | | Total |
| --- | --- | --- | --- |
| | Risk | No Risk | |
| Positive (≥126 mg/dl) | 21 (a) | 8 (b) | 29 (a+b) |
| Negative (<126 mg/dl) | 8 (c) | 82 (d) | 90 (c+d) |
| Total | 29 (a+c) | 90 (b+d) | 119(a+b+c+d) |

Note : a. True Positive (TP) = 21 b. False Positive (FP) = 8 c. False Negative (FN) = 8 d. True Negative (TN) = 82

The results of table 4 the accuracy value is 86.55%, which is obtained from the calculation of the number of positive people who have the risk of Diabetes Mellitus in pregnancy plus the number of people who do not have the risk divided by the total number of respondents who examined the instrument.

The results of research of the early detection instrument for Diabetes Mellitus in pregnancy were obtained with a sensitivity value of 72.41%. This early detection instrument can detect pregnant women with the risk of Diabetes Mellitus in pregnancy and indeed indeed has Diabetes Mellitus in pregnancy. The sensitivity value in this study shows the early detection instrument of Diabetes Mellitus in sensitive pregnancy so that it can effectively be used in detecting a pregnancy disorder that is Diabetes Mellitus in pregnancy. In line with research conducted by Perovic, 2012 which produced a high sensitivity value of 90.9% showing Ultrasound Gestational Diabetes

Screening Score (UGDS) is a good predictor for detecting diabetes mellitus in pregnancy, it has a sensitivity value above 90% due to the method which is used using ultrasound which is known to have high solubility. But not in line with research conducted by Harahap, 2010 is to discuss the development of tools, namely the development of screening tools for hypertension carried out in previous studies, which obtained a sensitivity value of 61.6% so that hypertension screening tools are quite effective to be used to detect hypertension, this is because the instruments used does not have a high validity value and high reliability so that the tool has a sensitivity value that is effective enough to detect hypertension (Perović et al., 2012)(Heryudarini Harahap, Yekti Widodo, Sri Muljati, Agus Triwinarto, 2010).

The results of the early detection instrument for Diabetes Mellitus in pregnancy were obtained with a specificity value of 91.11%, where this value indicates that the instrument has a high specificity value so that it is specific in detecting Diabetes Mellitus in pregnancy in Indonesia. Specificity values in this study indicate that early detection instruments for Diabetes

Mellitus in pregnancy can be used in detecting a pregnancy disorder, Diabetes Mellitus in pregnancy. This is supported by research conducted by Hansarikit, 2011 where a high specificity value of 81.8% in the modification of criteria using fasting blood sugar and 2 hours of plasma glucose measurement can be used as a standard alternative to detect diabetes mellitus in pregnancy (Heryudarini Harahap, Yekti Widodo, Sri Muljati, Agus Triwinarto, 2010).

The diagnostic test results on this instrument obtained an accuracy value of 86.55%, this shows that the early detection instrument of Diabetes Mellitus in pregnancy can be said to be accurate in detecting Diabetes Mellitus in pregnancy. The accuracy of an instrument is seen from the higher value of accuracy produced, the test has a high accuracy, so this instrument is accurate and effective for correctly detecting all subjects tested with an accuracy value of 86.55% . This research is in line with Noerjanto, 2014 with an accuracy value of 75%, it can be said that the instrument developed is effective in detecting osteoporosis so that it can be used as an early indicator to detect osteoporosis (Noerjanto et al., 2014).

Until now there is no instrument for early detection of Diabetes Mellitus in pregnancy in Indonesia that is accurate in detecting early Diabetes Mellitus in pregnancy as reflected by the value of sensitivity, specificity, and accuracy of a diagnostic test. In the development of early diabetes mellitus detection instruments in pregnancy with high sensitivity, specificity, and accuracy values, they can be made as a preliminary diagnosis before other supporting examinations with the aim that immediate prevention and treatment can be given immediately. The composition of these instruments is in the form of history items and symptoms that indicate a possibility of a disease, so that the assessment of the health history of pregnant women is important which is developed through this early detection instrument for diabetes mellitus in pregnancy so that it can be used by midwives and pregnant women to detect early mothers pregnant so that it can be applied in basic health services for early detection of Diabetes Mellitus in pregnancy.

It is hoped that with the early detection instruments for gestational diabetes mellitus that have high sensitivity, specificity, and accuracy values can be used as guidelines for future health service standards to improve government programs in early detection of diabetes mellitus in pregnancy. Early detection of pregnancy can reduce the risk of complications that will occur during pregnancy and childbirth which aims to reduce morbidity and mortality rates for mothers and children in Indonesia.

## Conclusion

1. The sensitivity value of early detection instruments for diabetes mellitus in pregnancy is 72.41% which means the ability of DM early detection instruments in pregnancy in first trimester pregnant women to give positive results for pregnant women who suffer from DM in pregnancy by 72.41%.

2. The specificity value of the early detection instrument for diabetes mellitus in pregnancy is 91.11%, which means the ability of the early detection instrument of DM in pregnancy in first trimester pregnant women to give negative results to pregnant women who do not suffer from DM in pregnancy by 91.11%.

3. The accuracy value of early diabetes mellitus detection instruments in pregnancy is 86.55%, which means the ability of DM early detection instruments in pregnancy in first trimester pregnant women to correctly detect all pregnant women tested is 86.55%.

The results of diagnostic tests that have been carried out show that early detection instruments for DM in pregnancy have the ability to detect pregnant women who are at risk of DM in pregnancy or not at risk of DM in pregnancy. The output of this study is that early detection instruments for DM in pregnancy can be used directly by pregnant women to detect DM in pregnancy in order to foster motivation for early detection of DM in pregnancy and check for blood sugar with the presence or absence of indications during pregnancy. So that the expected outcome of this study is that early detection instruments for DM in pregnancy can be used as standards for pregnancy care services for pregnant women to improve existing programs and can be used as an alternative for early detection of DM

in pregnancy for all pregnant women before supporting examinations so that the incidence rate DM in pregnancy can be found.

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# The Relationship Between Cadre Participation with The Use of Long-Term Contraception Methods in Adulthood in The Banjeng Maguwoharjo Posyandu Area Sleman Yogyakarta

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## Abstract

Background: Long-term contraceptive methods are effective methods for delaying and spacing pregnancies, as well as stopping fertility. Therefore, the government is trying to increase the use of long-term contraceptives, but the use of non-long-term contraceptives is more than the use of long-term contraceptives. Objective: The study aimed to determine the relationship between the participation of health cadres in providing information regarding long-term contraceptive methods on the use of long-term contraceptives by WUS in the Banjeng Maguwoharjo Posyandu area, Depok, Sleman, Yogyakarta. Method: This research method is descriptive correlative using a cross-sectional design. The population and sample are WUS in Banjeng Hamlet, consisting of 25 people. The variables studied were the role of cadres and the use of long-term contraceptive methods. Univariate and bivariate data were analyzed using the chi-square test. The research data is primary data and secondary data with a questionnaire research instrument. Primary data was collected by distributing questionnaires and in-depth interviews to WUS. Result: The results showed that there was no relationship between the participation of cadres and the use of long-term contraceptive methods. This is evidenced by the p-value of 0.08. Conclusion: There is no relationship between the participation of cadres and the use of long-term contraceptive methods.

Keywords: role; cadres; LTCM; WUS; posyandu

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## Introduction

Based on data from Statistics Indonesia, Indonesia's population is projected to be 275.77 million in 2022. This number has increased by 1.13% compared to 2021, which amounted to 272.68 million people. Moreover, Indonesia is the fourth most populous country in the world (BPS, 2022). One of the efforts to control the number and rate of population growth in the 2005-2025 National Long-Term Development Plan (RPJPN) is through Family Planning (BKKBN). The main targets in creating quality families have controlled population growth and an increase in quality small families, as indicated by the increasing use of long-term contraceptive methods (LTCM).

The national family planning program in Indonesia is more directed towards the use of the LTCM, which is contraception that can be used for a certain period, long more than two years, and is effective and efficient for using spacing births of more than three years or terminating pregnancies in couples who do not want to have more children. The types of methods included in this group are stable contraceptive methods (MOP and MOW), implants, and IUDs (Asih, 2009).

The choice of contraceptives is related to the respondent's knowledge. The study shows that the majority of respondents use short-term contraceptives, namely injections and pills (54.9%), and have less knowledge about LTCM (68.5%) (Rosmadewi, 2015). A study from 11 countries reported that women with medium knowledge levels were more likely to use LTCM than their counterparts with low knowledge levels (Adde, 2022). Similar studies also note that education and information are variables associated with using MKJP (Pasundani, 2020).

A study of Ohio women who had never used LTCM (74%) revealed that one of the most common reasons for never using LTCM was wanting to avoid adverse side effects and not being familiar with LTCM (Chakraborty, 2022). Counseling to reduce misconceptions and fears over the side effects of LARC should be a crucial part of targeted reproductive health programmes (Kungu, 2020).

Previous research has recommended strategies to increase the use of LTCM, including an increasing public understanding

of LTCM and increasing health workers' skill capacity (Laksono AD, 2022). The role of cadres as health workers is also essential because they are one of the spearheads of success in improving maternal and child health. Cadre as an extension of health workers who can reach a wider community and are considered a link between the health center and the community Angraini (2020).

Previous studies have reported that the knowledge and role of health workers are essential in choosing a contraceptive method. However, limited studies highlight the relationship between the role of cadres and the utilization of MKJP. Therefore, this study aims to determine the relationship between the role of health cadres and the use of MKJP in PUS at Posyandu Banjeng Maguwoharjo Depok Sleman Yogyakarta.

## Method

This research is a correlative descriptive study with a cross-sectional approach. This research will be carried out in June 2018 in the Banjeng Maguwoharjo Posyandu area, Depok, Sleman, Yogyakarta. The population and sample in this study were all women of reproductive age in the

Banjeng Maguwoharjo Posyandu area, Depok, Sleman, Yogyakarta, totaling 25 WUS. The data used in this study are primary data and secondary data. Primary data includes the identity of the respondent (WUS), information on the role of cadres, and the use of LTCM. Secondary data in this study is the number of WUS. Univariate and bivariate data analysis using chi-square.

## Result and Discussion

**Table 1.** Characteristics of respondents

| Characteristics of Respondents | Information | N | (%) |
|---|---|---|---|
| Age (years) | 20-35 | 19 | 76 |
|  | >35 | 6 | 24 |
| Education | Base | 1 | 4 |
|  | Intermediate | 17 | 68 |
|  | High | 7 | 28 |
| Profession | Working | 19 | 76 |
|  | Doesn't work | 6 | 24 |
| Number of children | 1 child | 19 | 76 |
|  | 2-3 children | 6 | 24 |

From the table above it can be concluded that the characteristics of the respondents based on the age of some respondents aged 21-35 years, namely as many as 19 people (76%). Characteristics of respondents based on education, some respondents had secondary education, namely 17 people (68%). Characteristics of respondents based on the work of some respondents did not work, namely as many as 6 people (24%). Characteristics of

respondents based on the number of children, some respondents had 2-3 .children, namely 6 people (24%).

**Table 2.** Characteristics of respondents in the use of LTCM

| Characteristics of Respondents | Use of LTCM | | | | Total | |
|---|---|---|---|---|---|---|
| | Yes | (%) | No | (%) | N | % |
| Age | | | | | | |
| 20-35 years | 10 | 40 | 9 | 36 | 19 | 76 |
| >35 years | 3 | 12 | 3 | 12 | 6 | 24 |
| Total | 13 | 52 | 12 | 48 | 25 | 100 |
| Education | | | | | | |
| Base | 0 | 0 | 1 | 4 | 1 | 4 |
| Intermediate | 10 | 40 | 7 | 28 | 17 | 68 |
| High | 3 | 12 | 4 | 16 | 7 | 28 |
| Total | 13 | 52 | 12 | 48 | 25 | 100 |
| Profession | | | | | | |
| Working | 8 | 32 | 11 | 44 | 19 | 76 |
| Doesn't work | 5 | 20 | 1 | 4 | 6 | 24 |
| Total | 13 | 52 | 12 | 48 | 25 | 100 |
| Number of children | | | | | | |
| 1 child | 10 | 40 | 9 | 36 | 19 | 76 |
| 2-3 children | 3 | 12 | 3 | 12 | 6 | 24 |
| Total | 13 | 52 | 12 | 48 | 25 | 100 |

**Table 3.** The relationship between the participation of cadres and the use of contraceptives

| Participation of Cadres | The use of contraceptives | | | | *Total* | | *p-value* |
|---|---|---|---|---|---|---|---|
| | Yes | | No | | | | |
| | N | % | N | % | N | % | |
| Unsufficent | 0 | 0 | 0 | 0 | 0 | 0 | 0,08 |
| Sufficent | 13 | 52 | 12 | 48 | 25 | 100 | |
| Total | 13 | 52 | 12 | 48 | 25 | 100 | |

## Discussion

### Characteristics of respondents

The study results found that most of the respondents who used LTCM were 20-35 years old. This is because at that age couples of childbearing age must think about the number of children they want and arrange the spacing of pregnancies.

The age aspect is related to the fertile period to giving birth. The odds of using LTCM increased with age. The results of another study show that as women age, they perceive long-term methods to be more protective, safe, and reliable than short-term methods of contraception (Adde, 2022). Apart from age, the husband's participation is also associated with the choice of contraception (Suryanti, 2019). The Harvey study found that several relationship qualities and dynamics partner-specific qualities contributed to contraceptive method use (Harvey, 2018).

This study found that more highly educated women of reproductive age used LTCM. Studies in Southeast Asia report that women's low education is one of the barriers to using LTCM (Laksono AD, 2022). Similar studies also note that one of the main limitations of providing LTCM is the lack of education and accurate knowledge (Secura, 2010). Women with better education levels better understand their needs, also better understand the risk factors for any action or decision they take, including a better understanding of LTCM (Richards, 2020).

This study shows that working mothers tend to use MKJP. Because LTCM is more practical and highly effective in preventing unwanted pregnancies and has low dependency on user compliance, working women prefer LTCM (Bahamondes, 2020). A study from 11 countries reported that working women had a higher propensity to use short-term contraceptive methods. In contrast, women with high decision-making capacity had a lower probability of using long-term methods (Adde, 2022). The choice of contraceptive is determined by patient preferences and tolerance for failure. Patients may value other attributes of a method more highly than effectiveness and may prefer a slightly higher risk of an unplanned pregnancy to avoid further adverse effects (Teal, 2021).

**The relationship between the participation of cadres and the use of contraceptives**

Based on the study's results, it was found that the participation of cadres in the use of contraceptive methods by some WUS said that it was sufficient, namely 13 people (52%). However, data analysis shows that there was no relationship between the participation of cadres and the use of long-

term contraceptive methods (p-value = 0.08). In contrast, previous studies found that the role of health workers tended to increase respondents' interest in using long-term contraception (Koba, 2019).

It is possible that the information from cadres was incomplete and inaccurate so they could not motivate women of reproductive age to use LTCM. Studies have proven that the results of FGDs show that people's knowledge is low due to incomplete information received from health workers. The more negative the attitude of health workers in providing family planning counseling, the less the use of contraceptives (Pastuty, 2022).

The results of Angraini's study (2020) reported that the majority (63,33%) of posyandu cadres did not understand the type of contraception, so they provided "SHASIBU" (mother sharing) training for health cadres in carrying out communication, information, and education activities for women of reproductive age which can increase the coverage of LTCM.

LTCM is the most effective contraceptive method (99% effective) if used correctly in the first year, and thus reduces the risk of unwanted pregnancy by half. The study has shown that more than 60% of adolescents and young women would readily utilize LTCM if given comprehensive counseling by health providers (Winner, 2012). Contraceptive services will work well if people are familiar with the various types of contraception available. In this case, health workers need to provide correct and detailed information about the types of contraceptives and their advantages and disadvantages so that acceptors and their partners can choose contraceptives according to their wishes (Rosmadewi, 2015).

However, Shoupe revealed many challenges to increasing the use of LARC, including reducing costs, ensuring easy access to training, increasing patient knowledge, and encouraging patient interest (Shoupe, 2016).

## Conclusion

There is no relationship between the participation of cadres and the use of long-term contraceptive methods.

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# Relationship Between Fulfilling Balance Nutrition and Stunting in Toddlers Aged 24-26 Months

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## Abstract

Stunting is a chronic malnutrition problem caused by insufficient nutritional intake for a long time due to feeding that is not in accordance with nutritional needs. Stunting can be a major threat to the quality of Indonesian people and also a threat to the nation's competitiveness. This can occur because stunted children are not only disturbed by their physical growth, but also their brain development which greatly affects their ability and achievement at school, productivity and creativity at productive age. This research was conducted to determine the relationship between the fulfillment of balanced nutrition and the incidence of stunting in children under five. The design of this study was an observational analytic epidemiology using cross sectional. The population in this study were 200 respondents with a quota sampling technique. Furthermore, bivariate analysis was carried out using the chie square. The results showed that the majority of the level of fulfillment of balanced nutrition in toddlers was 143 (71.5%) and the incidence of stunting was mostly not stunted by 161 respondents (80.5%). Analysis of data using the chi square test with a significant level of 0.05 obtained p value is 0.000, which means that the value is smaller than the value of the significant level (0.000 <0.05) which indicates a relationship between the fulfillment of balanced nutrition and the incidence of stunting in children under five. The results of statistical data analysis also showed an Odds Ratio (OR) of 0.119 which means that the fulfillment of unfulfilled nutrition will have a chance of 0.119 with the incidence of stunting compared to the fulfillment of fulfilled balanced nutrition.

**Keywords**: balanced nutrition ; stunting ; toddlers

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## Introduction

Indonesia as a developing country still has various problems that need attention and improvement, one of which is the problem of people's nutrition. Nutritional problems in Indonesia and other developing countries are still dominated by malnutrition. Malnutrition is a problem that requires attention, because it is an important risk factor for morbidity and mortality in pregnant women and toddlers(Krisnansari, 2010).

One of the unresolved nutritional problems in toddlers is*stunting. stunt*is not only a national under-five nutrition problem, but has become a global problem. Stunting is a chronic malnutrition problem caused by inadequate nutritional intake over a long period of time and the provision of food intake that is not in accordance with nutritional needs. According to the World Health Organization (WHO), cases of short toddlers are a public health problem if the prevalence reaches ≥20%. Based on Nutrition Status Monitoring (PSG) (2017), shows the prevalence of stunting under five in Indonesia is 29.6%(Erika Fitria Lestari, 2020).

The problem of stunting is a problem that does not only occur nationally but is a global problem, especially in poor and developing countries. In 2017 there were 22.2% or around 150.8 million toddlers in the world experiencing stunting where half of the stunted toddlers in the world came from Asia (55%) while more than a third (39%) lived in Africa. Data on the prevalence of stunting under five collected by the World Health Organization (WHO), Indonesia is included in the third country with the highest prevalence in the Southeast Asia/South-East Asia Regional (SEAR) region. The average prevalence of stunting under five in Indonesia in 2005-2017 was 36.4%(Kementerian Kesehatan RI, 2018).

Stunting can be a major threat to the quality of Indonesian people and also a threat to the nation's competitiveness. This can happen because stunted children are not only disturbed by their physical growth, but also by disrupted brain development which greatly affects their ability and achievement in school, productivity and creativity in productive age.Children who suffer from stunting will be more susceptible to disease and when they become adults are at risk of developing degenerative diseases. Cases of stunting in children can be used as an indicator of the

low quality of a country's human resources. Stunting can lead to poor cognitive abilities, low productivity and an increased risk of disease resulting in long-term losses for the Indonesian economy(Setiawan et al., 2018).

The research conducted by Artanti (2022) with title Stunting and Factors Affecting Toddlers in Indonesia found that stunting is influenced by several complex factors not only at the individual level but also at the family and community levels. A comprehensive synthesis of the available evidence on the determinants of stunting in children in Indonesia outlines who is most vulnerable to stunting, which interventions are successful, and what new research is needed to fill knowledge gaps (Artanti, 2022).

The research conducted by Shinsugi (2015) about Factors associated with stunting among children according to the level of food insecurity in the household: a cross-sectional study in a rural community of Southeastern Kenya found that among 404 children, the prevalence of stunting was 23.3%. The percentage of households with severe food insecurity was 62.5%. In multivariative analysis, there was no

statistically significant association with child stunting (Shinsugi et al., 2015).

Balanced nutritional intake from food plays an important role in the process of child growth(Mentari & Agus, 2018). The application of a balanced nutritional diet emphasizes the pattern of food consumption in the type and quantity of the principle of diversity of food to prevent nutritional problems. Components that must be met in implementing a balanced nutritional diet include adequate quantity, quality, contain various nutrients (energy, protein, vitamins and minerals) for daily life and can store nutrients to meet the body's needs(Izwardi, 2016).

Other research conducted by Yulianti (2022) shows the qualitative results produced seven themes, including mother's perception of illness (stunting), child health development, maternal health history, mother's adaptive and maladaptive behavior during child care, mother's form and source of support during child care, mother's form and source of obstacles during child care, and mother's psychological response (Mona Yulianti, Puji

Nurfauziatul, Sutisna Sutisna, Karwati Karwati, 2022).

Qualitative studies through focus group discussions show that mothers of toddlers are not too worried about 'stunting'. Children who are short and not tall are not too worried about them because the important thing is that children are healthy, can play and are not fussy. It was also said that being shorter than friends of his age was not too much of a problem because his parents were also short(Margawati & Astuti, 2018). Other research shows that the consumption of children under five is in the category of lacking energy (55.9%), protein (52.6%) and calcium (52.0%) and is statistically significant with an OR value of 4.53;5.34;3 ,93. Low energy, protein, and calcium intake is caused by limited variety of food and the number of meals that are only eaten twice a day is related to the low education of parents of toddlers(Nabuasa et al., 2016). Other research also shows that parenting is a risk factor for stunting with an Odds Ratio value of 8.07. This shows that toddlers with poor eating parenting styles have an 8 times greater chance of experiencing stunting, when compared to toddlers with good eating parenting styles.(Widyaningsih et al., 2018).

A good diet does not necessarily mean that the food contains the correct nutritional intake. Many toddlers have a good diet but do not meet the number and composition of nutrients that meet the requirements for balanced nutrition. Balanced nutritional intake from food plays an important role in the process of child growth(Mentari & Agus, 2018). Diet is the most important ingredient in overcoming the problem of stunting(Kementerian Kesehatan RI, 2018). The application of a balanced nutritional diet emphasizes food consumption patterns in the type, quantity and principle of diversity of food to prevent nutritional problems. Components that must be met in implementing a balanced nutritional diet include adequate quantity, quality, contain various nutrients (energy, protein, vitamins and minerals), and can store nutrients to meet the body's needs.(Izwardi, 2016).

## Methods

The type of research in this study was descriptive correlation research, namely analyzing the relationship between the fulfillment of a balanced nutritional diet and the incidence of stunting. Time approach using the Cross Sectional method.The population of this

study were mothers who had toddlers aged 24-60 months as many as 200 toddlers using a quota sampling technique obtained from 10 Posyandu. Data collection was carried out using the Food Frequency Questionnaire (FFQ) to measure food intake and a questionnaire to measure the incidence of stunting using the Z-Score.

## Results and Discussion

Respondents in this study consisted of 200 people who met the inclusion criteria.

**Table 1**. Distribution of Fulfillment of Balanced Nutrition in Toddlers Age 24-60 Months

| Variable | Category | Frequency |
|---|---|---|
| Nutrition Fulfillment Balanced | Not fulfilled | 57 (28.5%) |
| | Fulfilled | 143 (71.5%) |
| Total | | 200 |

Table 1 shows an overview of the fulfillment of balanced nutrition in toddlers. The number of respondents in the fulfilled category was 143 people (71.5%) while the unfulfilled were 57 people (28.5%).

Fulfillment of balanced nutrition includes daily consumption of foods that contain nutrients in the type and amount according to the body's needs, taking into account the

principles of food diversity, physical activity, clean living behavior and monitoring body weight regularly in order to maintain normal body weight to prevent problems. Nutrition (Peraturan Menteri Kesehatan Republik Indonesia Nomor 41 Tahun 2014 Tentang Pedoman Gizi Seimbang, 2014). Based on the results of the study, 109 people (54.5%) consumed vegetables (54.5%) and 91 people (45.5%) fulfilled balanced nutrition based on indicators of food consumption. Consumption of vegetables that contain vitamins, minerals and fiber is a simple indicator in realizing the fulfillment of balanced nutrition. As for the consumption of carbohydrates, proteins, fats and fruits have been fulfilled. A decline in the quality of household food consumption which is characterized by limited purchases of food sources of protein, vitamins and minerals will result in malnutrition, both macro and micro nutrients(Nasikhah, Roudhotun. Margawati, 2012).

The main cause of malnutrition in toddlers is poverty so that children's access to food is disrupted. Another cause is parents' ignorance due to lack of education resulting in low knowledge of nutrition and the emergence of food taboo behavior,

where nutritious food is taboo and may not be consumed by children under five. Ignorance about nutrition can result in a person choosing the wrong food ingredients and how to serve them. On the other hand, mothers with good nutritional knowledge usually practice healthy eating patterns for their children to fulfill their nutritional needs.(Suryani, 2017)

The factors that affect the fulfillment of balanced nutrition in toddlers are mother's education, mother's occupation, family income, number of children and mother's upbringing. Of these factors the most influential factor is family income(Putri et al., n.d.). Mothers who are highly educated will usually have a job which will affect the limited time in caring for children so that attention in providing food intake to children will decrease. This can affect the fulfillment of nutrition and growth and development of toddlers. The socioeconomic level of the family is related to the purchasing power of the family. The family's ability to buy groceries also depends on the size of the family's income, the price of groceries and its management. Limited family income will also determine the quality of toddler food both in quality and quantity(Nasikhah, Roudhotun. Margawati, 2012).

The number of family members is also one of the factors that influence the fulfillment of toddler nutrition in the family. The number of family members that is not matched by an increase in family income will have an impact on fulfilling toddler nutrition(Hapsari, 2010). Fulfillment of balanced nutrition in toddlers really needs to be emphasized in efforts to prevent cases of short toddlers (stunting). Stunting is a condition in which toddlers have less length or height compared to their age(Toddler, 2016). Balanced nutrition is food that is consumed by various individuals on a daily basis and fulfills the 5 groups of nutrients in sufficient quantities, not excessive and not lacking.(Toddler, 2016). The implementation of the four pillars in fulfilling balanced nutrition in toddlers needs to pay attention to the diversity of foods, get used to healthy living behaviors, carry out physical activities, maintain and monitor normal body weight.

**Table 2**. Distribution of Stunting Incidents in Toddlers Age 24-60 Months

| Variable | Category | Frequency |
|----------|----------|-----------|
| Incident | Yes | 39 (19.5%) |
| stunt | No | 161 (80.5%) |
| Total | | 200 |

Table 2 shows an overview of the incidence of stunting in toddlers. The number of respondents in the stunting category were 39 people (19.5%) while those who were not stunted were 161 people (80.5%).

The toddler period is a period that is very sensitive to the environment so that more attention is needed, especially nutritional adequacy (Kurniasih, 2010). Nutritional problems, especially stunting in toddlers can hinder children's development, with negative impacts that will take place in later life such as intellectual decline, vulnerability to non-communicable diseases, decreased productivity leading to poverty and the risk of giving birth to babies with low birth weight(Nadhiroh, 2015).

Stunting is a condition of failure to thrive in children under five (babies under five years) resulting from chronic malnutrition so that children are too short for their age. Malnutrition occurs since the baby is in the womb and in the early days after the baby is born, however, stunting is a new condition51ias51r after the baby is 2 years old. Stunted and severely stunted toddlers are toddlers with body length (PB/U) or height (TB/U) according to their age compared to WHO-MGRS (Multicentre Growth Reference Study) standards.(Health, 2014).

**Table 3**. The relationship between fulfilling a balanced nutritional diet and stunting in toddlers aged 24-60 months

| Fulfillment of Balanced Nutrition | Stunting events | | | | Total | | P-values | OR |
|---|---|---|---|---|---|---|---|---|
| | Yes | | No | | | | | |
| | F | % | F | % | f | % | | |
| Not fulfilled | 26 | 45,6 | 31 | 54,4 | 57 | 100 | | |
| Fulfilled | 13 | 9,1 | 130 | 90.9 | 143 | 100 | 0.000 | 0.119 |
| Total | 39 | 19.5 | 161 | 80.5 | 200 | 100 | | |

Table 3 shows the fulfillment of balanced nutrition with the incidence of stunting in toddlers aged 24-60 months. It can be seen that 26 people (45.6%) did not

fulfill balanced nutrition with stunting and 31 people (54.4%) did not. Meanwhile, 13 people (9.1%) fulfilled balanced nutrition with stunting incidents and 130 people (90.9%) without stunting.

The results of statistical data analysis obtained a p value of 0.000 with a significance level of 0.05. The results of the hypothesis test of the fulfillment of balanced nutrition (p = 0.000) are related to the incidence of stunting in toddlers. The table also shows that the Odds Ratio (OR) is 0.119, which means that unfulfilled balanced nutrition will have a 0.119 chance of stunting compared to fulfilled balanced nutrition.

The factors that affect the fulfillment of balanced nutrition in toddlers are mother's education, mother's occupation, family income, number of children and mother's upbringing. Of these factors the most influential factor is family income(Princess et al., n.d.). Mothers who are highly educated will usually have a job which will affect the limited time in caring for children so that attention in providing food intake to children will decrease. This can affect the fulfillment of nutrition and growth and development of toddlers. The

socioeconomic level of the family is related to the purchasing power of the family. The family's ability to buy groceries also depends on the size of the family's income, the price of groceries and its management. Limited family income will also determine the quality of toddler food both in quality and quantity(Nasikhah, Roudhotun. Margawati, 2012).

Provision of appropriate food ingredients and menus for toddlers in an effort to improve nutritional status will be realized if the mother has a good level of nutritional knowledge. Ignorance regarding information about nutrition can lead to a lack of quality or nutritional quality of family food, especially food consumed by toddlers (Sjahmien, 2003). One of the causes of nutritional disorders is a lack of knowledge of nutrition and the ability to apply information about nutrition in everyday life. The mother's nutritional knowledge level influences attitudes and behavior in choosing food ingredients, which will further affect the nutritional status of her family(Mugianti et al., 2019).

Nutritional status is also very much determined by other factors such as family support in providing nutritious food and the

family's socioeconomic level. Families with poor socioeconomic conditions accompanied by a large number of children will result in not only a lack of attention and affection for children but also primary needs such as food, clothing, and shelter or housing not being met.

## Conclusion

Based on research that has been conducted on 200 respondents, it can be seen that the majority of the fulfillment of balanced nutrition in toddlers is fulfilled by143 (71.5%) and most of the stunting incidents did not experience stunting by 161 respondents (80.5%).Data analysis used the chi square test with a significant level of 0.05 and obtained a p value of 0.000, which means that the value is smaller than the significant level (0.000 <0.05) which indicates that there is a relationship between fulfilling balanced nutrition and the incidence of stunting in toddlers. The results of statistical data analysis also show that the Odds Ratio (OR) is 0.119, which means that unfulfilled nutrition will have a 0.119 chance of stunting compared to fulfilled balanced nutrition.

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# Level of Knowledge and Attitude of Street Children about HIV/AIDS Incidence in Mataram City

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## Abstract

The number of HIV infections in NTB Province from the first time it was found up to March 2017 was 1,279, while the number of AIDS infections from 1987 to March 2017 was 704 people. The most risk factors for transmission are through heterosexuals (68%), IDUs (11%), followed by homosexuals (4%) and perinatal transmission (3%). Poor or wrong understanding of sexual problems puts teens at risk of unprotected sexual relations, such as changing partners, using drugs and not using condoms. Street children are one of the vulnerable groups infected with HIV. Describe the Level of Knowledge and Attitudes of Street Children about the Incidence of HIV / AIDS in the City of Mataram. Descriptive research method using a cross-sectional study design. The research location is in the city of Mataram. The population in this study were 30 street children in the city of Mataran. The sampling technique in this study was consecutive sampling. Analysis using univariate analysis. Results: the level of knowledge of street children about the incidence of HIV / AIDS in the city of Mataram which is the most knowledgeable is 22 people (73.3%) and in line with the good attitude that is 27 people (90%).

**Keywords**:  Attitudes; HIV/AIDS Events; Knowledge; Street Children

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## Introduction

AIDS starts from the body being infected by the Human Immunodeficiency Virus HIV, then HIV attacks certain cells of the immune system and destroys the immune system after infecting the human host (Guindo et al., 2014).

The number of HIV infections in NTB Province from when it was first discovered until March 2017 was 1,279, while the number of AIDS infections from 1987 to March 2017 was 704 people. The most risk factors for transmission are heterosexual (68%), IDU (11%), followed by homosexual (4%) and perinatal transmission (3%) (PP&PL Kementrian Kesehatan RI, 2014).

Based on the age, most cases of HIV/AIDS in Indonesia are suffered by productive age 25-49 years, and adolescents aged 15-19 years occupy the fifth position (Infodatin, 2014). Adolescence is a very wide age range for HIV infection. More than half of new HIV infections in the world are found at the age of 15-19 years, and the majority of adolescents are infected due to sexual intercourse (Guindo et al., 2014). In recent years, due to economic development and the influence of the mass media, it has influenced the attitudes and perceptions of adolescents about premarital sex.

Inadequate or wrong understanding of sexual issues causes adolescents to be at risk of having unsafe sexual relations, such as changing partners, using drugs, and not using condoms (Humas Rumah Sakit Hasan Sadikin, 2014).

## Method

This research method uses a descriptive research design with a cross-sectional study design (Notoadmodjo, 2012). Univariate analysis aims to explain or describe the characteristics of each research variable with a frequency table, then bivariate and multivariate analysis is used to determine the relationship between each independent variable, namely knowledge, attitudes and behavior of street children infected with HIV/AIDS in street children in Mataram City.

The population in this study were street children in the city of Mataram. In this study using a minimum sample of 30 samples. The sampling technique used in this study used consecutive sampling to be the choice of researchers who did not get a sample frame.

## Result and Discussion

**Table 1**. Distribution of the characteristics of street children about the incidence of HIV/AIDS in the city of Mataram

| Variable<br>Gender | N | % |
|---|---|---|
| Man | 24 | 80 |
| Woman | 6 | 20 |
| Education | | |
| Not completed in primary school | 8 | 26,7 |
| Graduated from elementary school/equivalent | 11 | 36,7 |
| Graduated from Middle School/Equivalent | 5 | 16,6 |
| Graduated from high school/equivalent | 6 | 20 |
| Residence | | |
| With parents | 23 | 76,7 |
| Not with parents | 7 | 23,3 |
| Resources | | |
| Electronic Media | 9 | 30 |
| Friend | 21 | 70 |
| Length of activity of street children | | |
| <6 hours/day | 5 | 16,7 |
| ≥6 hours/day | 25 | 83.3 |
| Long been a street child | | |
| <1 year | 18 | 60 |
| ≥1 year | 12 | 40 |

Based on table 1, it can be seen that most of the street children are male, namely 24 people (80%) with education mostly in elementary school, namely as many as 11 people (36.7%) and most of the street children live with their parents, namely 23 people (76.7%). It is also known that most of the sources of information about HIV/AIDS on street children in Mataram City are through friends, namely 21 people (70%) and most of them carry out activities on the streets, namely ≥6 hours/day as many as 25 people (83.3%) and most respondents became street children, namely <1 year as many as 18 people (60%) .

**Table 2**. Distribution The level of knowledge and attitudes of street children about HIV/AIDS in the city of Mataram

| Variable<br>Knowledge level | N | % |
|---|---|---|
| Not enough | 8 | 26,7 |
| Well | 22 | 73,3 |
| Attitude | | |
| Not enough | 3 | 10 |
| Well | 27 | 90 |

## Conclusion

HIV/AIDS can be prevented by providing basic knowledge to youth about sexually transmitted diseases HIV/AIDS because of wrong information can plunge teenagers into promiscuity or to other things that can leading to the transmission of HIV/AIDS. Basic knowledge information about HIV/AIDS can help to understand and realize how much the dangers of HIV/AIDS so that teenagers can have positive attitudes and behaviors healthy to avoid HIV/AIDS (Lestari, 2014).

Street children in the transition period of adolescence have a desire to be accepted by friends and the social environment around them. They tend to participate in group activities that they want for reasons of solidarity, including wearing tattoos and piercings. Tattoos and piercings are also used as a way for street children to relieve the stress and frustration they experience (D'Ambrosio et al., 2013). This is in accordance with the theory and results of previous research where adolescents use body piercing for reasons of aesthetics, self-expression and their personal identity and there is a significant correlation between the use of tattoos and piercings with psychological problems related to personality disorders, tendency to self-harm in dissociative disorders, alexithymia, and sensation-seeking traits (Stirn et al., 2006).

Based on the results of the study, it was found that the level of knowledge of street children about the incidence of HIV/AIDS in the city of Mataram was mostly well-informed, namely 22 people (73.3%) and in line with the attitude of street children about the incidence of HIV/AIDS in the city of Mataram, which was mostly good, namely 27 people (90%).

According to the Big Indonesian Dictionary, knowledge is something that is known related to the learning process. Process This learning is influenced by various factors from within, such as motivation and External factors in the form of available information facilities, as well as social circumstances and culture. Knowledge can be acquired by a person naturally or intervened either directly or indirectly (Budiman & Riyanto, 2013).

This research is in line with research conducted by Rahmati (2014) with the result that the level of knowledge about the meaning of HIV/AIDS is good (96%). This could be due to the fact that the distribution of respondents based on their level of knowledge of HIV/AIDS varied greatly, according to the respondents' answers which also varied.

Knowledge can be the basis for making an assessment of an object, which is produced in the form of an attitude (Rahman, 2017). Attitude is a thought or opinion about something or someone (Cambridge Dictionary, 2014). According to Sarwono, a person's attitude can change by obtaining additional information about the object, through persuasion and pressure from their social group (Kholid, 2015).

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**Jurnal Kebidanan**

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# Correlation between Nutritional Status of Mothers During Pregnancy and Stunting Incidence at the Age of 24-59 Months at Godean Health Center 1

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## Abstract

The prevalence of stunting under-fives in Indonesia is still high, namely 29.6%. The 2014 Global Nutrition Report showed that Indonesia was included in 17 countries, among 117 countries, which had three nutritional problems, namely stunting, wasting and overweight in under-fives. Mothers who experience malnutrition are at risk of giving birth to malnourished babies. Fetuses that are malnourished from the womb are at greater risk of being born stunted. The impact of stunting is having a level of intelligence that is not optimal, making children more susceptible to disease and in the future there may be a risk of declining levels of productivity. This study aims to determine the correlation between mother's nutritional status during pregnancy and the incidence of stunting at the age of 24-59 months at Godean I Primary Health Center. The design of this study was case control using a retrospective approach. The number of samples was 92 respondents with a comparison of case groups and control groups 1: 1 taken at Godean 1 Primary Health Center with random sampling technique. The data analysis used Fisher Exact Test. The results of this study showed that there was a significant correlation between mother's nutritional status during pregnancy and the incidence of stunting at the age of 24-59 months with a value of 0.005 (<0.05), the Contingency Coefficient value of 0.302 indicating a low level of correlation closeness. Mothers are expected to pay attention to nutritional status during pregnancy in order to prevent the incidence of stunting in children.

**Keywords**: nutritional; pregnant women; stunting

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## Introduction

incidence of *stunting* decreased between 2000 and 2017, the global prevalence of *stunting* decreased from 32.6 percent to 22.2 percent, the number of children affected by *stunting* fell from 198 million to 151 million (UNICEF, 2018). Even though this number has decreased, this incident is still high because it is above the limit set by the *World Health Organization* , which is 20% (Depkes RI, 2018). According to the Indonesian Ministry of Health (2016) the prevalence of *stunting under five* in Indonesia is still high, namely 29.6%. The 2014 *Global Nutrition Report* shows that Indonesia is included in 17 countries, among 117 countries, which have three nutritional problems, namely *stunting* , *wasting* and *overweight* in toddlers (Kementrian Kesehatan RI, 2016).

The prevalence of *stunting under five* in DIY in 2017 was 13.86%, this figure was lower than Central Java province which was 28.5%. Even though this figure is lower, the prevalence of *stunting* in DIY is higher when compared to the 2013 Riskesdas, namely (8.2%) (Dinkes DIY, 2018). The highest prevalence of *stunting under five* in DIY is Sleman Regency, 20.60% and the lowest is Bantul Regency, 10.41% (Dinkes Sleman, 2017). The Puskesmas that has the highest prevalence of *stunting under five* in Sleman Regency is the Godean 1 Health Center with 21.76% (Dinkes Sleman, 2017).

Babies under the age of five (toddlers) or babies under the age of two (baduta) who are *stunted* will have a level of intelligence that is not optimal, making children more susceptible to disease and in the future can be at risk of declining productivity levels. In the end, *stunting* will generally hamper economic growth, increase poverty and widen inequality (TNP2K, 2021).

Based on research results of Rolfe (2018) that early stunting has implications on attained height, body composition and blood pressure. The apparent tendency of stunted individuals to accumulate less fat free mass and subcutaneous fat might predispose them towards increased metabolic risks in later life (Rolfe et al., 2018).

The other studies stated that impaired growth at 9 and 12 months was consistently associated with low cognitive and gross motor scores (GM). Children who were stunted at 9 months had lower GM scores at 12 months than their peers who were not stunted (Mireku et al., 2020).

Malnutrition for a long time occurs from the time the fetus is in the womb until the beginning of a child's life (the first 1000 days of birth). This is due to low access to nutritious food, low intake of vitamins and minerals, and poor diversity of food and sources of animal protein (RI, 2018).

The nutritional status of pregnant women is an indicator in measuring the nutritional status of the community. If the nutritional intake for pregnant women from food is not balanced with the body's needs, there will be a deficiency of nutrients. Pregnancy causes an increase in energy metabolism. Therefore, the need for energy and other nutrients increases during pregnancy. This increase in energy and nutrients is needed for the growth and development of the fetus, the increase in the size of the uterine organs, and changes in the composition and metabolism of the mother's body. So that a lack of certain nutrients needed during pregnancy can cause the fetus to grow imperfectly (Rahmaniar et al., 2013).

The nutritional status of pregnant women can be determined by measuring the size of the upper arm circumference, if it is less than 23.5 cm then the pregnant woman experiences Chronic Energy Deficiency (KEK) (Ariany et al., 2012).

Based on research results of Kpewou (2020) that infants born from mothers with a low mid-upper arm circumference (MUAC) during pregnancy had a 1.6 times higher risk of being stunted during the first 3.5 months of life compared with infants born from

mothers with a MUAC >23 cm. That research underlines the importance of optimum maternal MUAC during pregnancy for optimal infant growth. Interventions that aim to tackle stunting in infants should integrate improving maternal MUAC during pregnancy (Kpewou et al., 2020).

Mothers who are malnourished are at risk of giving birth to babies who are malnourished. A fetus who has been malnourished since birth is also at greater risk for *stunting* (Kurnia, 2014). Based on the results of Sukmawati's research (2018) states that there is a relationship between the nutritional status of mothers during pregnancy with the LiLA indicator and the incidence of *stunting* in toddlers aged 06-36 months.

Research by Dessie (2019) with the title Maternal characteristics and nutritional status among 6-59 months of children in Ethipia: Futher analysis of demographic and health survey shows the results that maternal education, nutritional status, and anemia were associated with child stunting. Also maternal nutritional status, place of delivery, and preceding birth interval were associated with wasting (Dessie et al., 2019).

## Method

The research design is case control using a retrospective approach (Notoatmodjo, 2010). The number of samples in this study were 92 respondents with a comparison of the case group and the control group of 1:1 at the Godean 1 Public Health Center using a random sampling technique. Data analysis using Fisher's Exact Test.

## Result and Discussion

### 1. Characteristics of Respondents

**Table 1**. Distribution of the frequency of mother characteristics at the Godean 1 Health Center

| No. | Characteristics of Mother | Frequency | |
|-----|---------------------------|-----|-----|
| | | N | % |
| 1. | Age | | |
| | At risk (<20 years and >35 years) | 25 | 27.20 |
| | Not at risk (20-35 years) | 67 | 72.80 |
| | Total | 92 | 100 |
| 2. | Mother's Education | | |
| | SD | 28 | 30.40 |
| | JUNIOR HIGH SCHOOL | 18 | 19.60 |
| | SENIOR HIGH SCHOOL | 25 | 27.20 |
| | PT | 21 | 22.80 |
| | Total | 92 | 100 |
| 3. | Profession | | |
| | Working | 48 | 52.20 |
| | Doesn't work | 44 | 47.80 |
| | Total | 92 | 100 |

Based on table 1, it is known that the highest age of mothers is age not at risk of 20-35 years, namely as many as 67 mothers (72.80%), the highest education is elementary school, namely 28 mothers (30.40%) and the most work is working mothers, namely 48 mothers (52.20%) . Total respondents are 92.

### 2. Nutritional Status of Mothers During Pregnancy at Godean 1 Health Center

**Table 2**. Frequency distribution of maternal nutritional status during pregnancy at Godean 1 Health Center

| Maternal nutritional status during pregnancy | Frequency | Percentage % |
|---------------------------------------------|-----------|--------------|
| KEK | 20 | 21.7 |
| No SEZ | 72 | 78.3 |
| Total | 92 | 100 |

Based on table 2, it is known that most of the nutritional status of mothers during pregnancy at the Godean 1 Health Center were mothers who did not experience CED as many as 72 mothers (78.3%).

### 3. Incidence of Stunting at the Age of 24-59 Months at the Godean 1 Health Center

**Table 3**. Distribution of the frequency of *stunting events* at the age of 24-59 months at the Godean 1 Health Center

| Stunting events | Frequency | Percentage % |
|---|---|---|
| stunt | 46 | 50 |
| Not Stunting | 46 | 50 |
| Total | 92 | 100 |

Based on table 3, it is known that the incidence of stunting at the age of 24-59 months at the Godean 1 Health Center is the same between children who are stunted and children who are not stunted, namely 46 children (50%) out of a total of 92 respondents.

### 4. Test result

Testing the relationship between the nutritional status of mothers during pregnancy and the incidence of stunting at the Godean 1 Health Center in this study used the Fisher's Exact Test with the following results:

**Table 4**. The nutritional status of mothers during pregnancy with *stunting* at the age of 24-59 months at the Godean Health Center

| Maternal nutritional status during pregnancy | Stunting events | | | | | | P-value |
|---|---|---|---|---|---|---|---|
| | stunt | | No Stunt | | Amount | | |
| | F | % | F | % | F | % | |
| KEK | 16 | 34.8 | 4 | 8.7 | 20 | 21.7 | |
| No SEZ | 30 | 65.2 | 42 | 91.3 | 72 | 78.3 | 0.005 |
| Total | 46 | 100 | 46 | 100 | 92 | 100 | |

The results of the analysis in table 4 show that of the 20 mothers who experienced CED, 16 children (34.8%) experienced stunting and 4 children (8.7%) did not experience stunting. Of the 72 mothers without CED, 30 children (65.2%) experienced stunting and 42 children (91.3%) did not experience stunting.

Based on the results of statistical tests using the Fisher's Exact Test, the results obtained were p value = 0.005 so that the p value was obtained (<0.05), which means that there is a significant relationship between the nutritional status of mothers during pregnancy and the incidence of stunting at the age of 24-59 months at Godean Health Center 1. The Contingency Coefficient value is 0.302 which means it has a low level of closeness.

### 5. Discussion

Based on table 2, it is known that the nutritional status of mothers during pregnancy at the Godean 1 Health Center experienced CED as many as 20 mothers (21.7%). This is caused by the age at risk of pregnancy, namely age <20 years and >35 years, namely 25 mothers (27.20)%.

According to Proverawati (2011), Pregnancy less than 20 years is biologically not optimal, the emotions tend to be unstable, the mentality is immature so it is easy to experiencing shock resulting in a lack of attention to meeting the needs of nutrients during pregnancy. Pregnancy at the age of more than 35 years is associated with a decline in organ function which causes it to work optimally. So that it requires additional

sufficient energy and is related to decreased endurance and various diseases.

Yustiana Kurnia's research results (2014) stated that mothers who are malnourished are at risk of giving birth to babies who are malnourished. Fetuses who have been malnourished since birth are also at greater risk of stunting. According to Arisman (2010) upper arm circumference <23.5 cm is caused by a lack of food intake obtained by mothers during pregnancy. Mothers with LILA <23.5 cm will have an impact on pregnancy, especially on the growth of the fetus in the womb.

Based on table 2, it is known that the nutritional status of mothers during pregnancy at the Godean 1 Health Center did not experience CED as many as 72 mothers (78.3%). This is because the awareness of pregnant women in Godean District to have their pregnancy checked at least 4 times is already high (75.82%). Thus pregnant women who are known from the start to experience chronic energy deficiency can be immediately treated by health workers, so that intervention can be carried out as early as possible.

Intervention of the supplementary feeding program (PMT) given to pregnant women can improve their nutritional status including increasing the baby's weight and length interventions given so that the baby in the womb can continue to grow and develop properly.

According to Waryana (2010) Measuring the nutritional status of pregnant women is done by measuring the Upper Arm Circumference (LiLA). According to Ariany (2012) LILA measurement is to find out whether a person suffers from Chronic Energy Deficiency (KEK). The use of BMI can only apply to adults, namely > 18 years and not pregnant). The Ministry of Health of the Republic of Indonesia (2016) states that a minimum of 4 visits during pregnancy are carried out, the LiLA measurement is carried out during K1 pregnancy examinations. K1 is the mother's first contact with a health worker to get a pregnancy check-up in the first trimester, where the gestational age is 1-12 weeks (Kementrian Kesehatan RI, 2016).

The most characteristics of respondents based on education were last elementary education, namely 28 mothers (30.40%). Research conducted by Rahayu & Khairiyati (2014) stated that low maternal education had a significant relationship with the incidence of stunting with a p value <0.05 and the risk of having stunted children 5 .1 times greater than mothers with higher education, mothers who have education ≥ junior high school tend to be better at parenting and better at selecting children's food types, so they have greater opportunities to access information, then this information affects nutritional status and better child health.

Characteristics of respondents based on the most jobs are working mothers, namely as many as 48 mothers (52.20%). Nutritional problems are caused by many interrelated factors. Mother's work is one of the risks for stunting.

Based on research by Al-Anshori & Nuryanto (2013) conducted in the city of Semarang, it showed that there was a significant relationship between mother's occupation and nutritional

status, where working mothers had more short children than mothers who did not work. This happens because mothers who do not work will have more time with their children and will affect the improvement of the nutritional quality of their children.

Based on the results of statistical tests using the Fisher's Exact Test, the p value = 0.005 indicates a p value (<0.05), which means that there is a significant relationship between the nutritional status of mothers during pregnancy and the incidence of stunting at the age of 24-59 months at Godean Health Center 1. The Contingency Coefficient is 0.302 which means it has a low level of closeness.

This is supported by the results of Kpewou (2020) that infants born from mothers with a low mid-upper arm circumference (MUAC) during pregnancy had a 1.6 times higher risk of being stunted during the first 3.5 months of life compared with infants born from mothers with a MUAC >23 cm. That research underlines the importance of optimum maternal MUAC during pregnancy for optimal infant growth. Interventions that aim to tackle stunting in infants should integrate improving maternal MUAC during pregnancy (Kpewou et al., 2020).

The results of this study are in line with Sukmawati's research (2018) in the working area of the Bontoa Health Center, Maros Regency, which stated that there was a significant relationship between the nutritional status of pregnant women based on LiLA and the incidence of stunting in toddlers aged 06-36 months with a value of p = (0.01) . Unlike the

research conducted by Warsini (2016) in Sedayu District, Bantul, Yogyakarta which stated that a history of CED during pregnancy was not statistically related to the incidence of stunting in toddlers (OR=0.61, 95% CI=0.32-1, 14).

In accordance with the opinion of Setyawati (2016) which states that the nutritional status of the mother before and during pregnancy affects the growth of the fetus she contains. If the mother's nutritional status was normal before and during pregnancy, it is likely that she will give birth to a healthy, full-term baby with normal weight and length. In other words, the quality of the baby being born is highly dependent on the nutritional state of the mother before and during pregnancy.

This research is supported by Erna's research (2015) which states that there is a significant relationship between a history of nutritional status of pregnant women (upper arm circumference/LILA) and the incidence of stunted in children aged 12-24 months in the working area of the Mersam Health Center, Batang district. P Value = 0.011 (p = 0.05) and OR = 7.500, meaning that mothers with MUI <23.5 cm have a 7.500 risk of giving birth to stunted children.

This is supported by the results research by Dessie (2019) with the title Maternal characteristics and nutritional status among 6-59 months of children in Ethipia: Futher analysis of demographic and health survey shows the results that identified that mother's nutritional status had significant association with stunt ing. Children whose mothers had underweight nutritional status were 1.20 times (AOR = 1.20;

95%CI: 1.06,1.35) more likely to be stunted as compared to children of mothers with normal nutritional status. Finally, the likelihood of being stunted was 1.18 times.

Based on QS An-Nissa verse 9, stunting is a child with a weak condition which can make children more susceptible to disease. Allah SWT commands parents to be serious about their child's health. Parents should not leave weak (sick) children and heirs, lest they make a will that will bring harm and interfere with the welfare of those left behind (Departemen Agama RI, 2008).

## Conclusion

Based on the results of research that has been conducted to determine the nutritional status of mothers during pregnancy and the incidence of *stunting* at the age of 24-59 months at the Godean 1 Public Health Center,

1. The nutritional status of mothers during pregnancy at the Godean 1 Health Center who experienced Chronic Energy Deficiency (KEK) were 20 mothers (21.7%) and those who did not experience Chronic Energy Deficiency (KEK) were 72 mothers (78.3%) out of a total of 92 respondents.

2. The incidence of stunting at the age of 24-59 months at the Godean 1 Health Center was the same between children who were stunted and children who were not stunted, namely 46.46 children out of a total of 92 respondents.

3. It can be concluded that there is a significant relationship between the nutritional status of mothers during pregnancy and the incidence

of *stunting* at the age of 24-59 months. *p-value* 0.005 (<0.05).

4. The results of the closeness of the relationship between the two research variables *Contingency Coefficient* is 0.302 which means it has a low level of closeness.

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# Description of Hemoglobin Levels for Pregnant Women Workers of The Djarum Cigarette Factory at The Mejobo Kudus Health Center

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## Abstract

During pregnancy a woman is very susceptible to disorders of low levels of hemoglobin in the blood. Low hemoglobin values are associated with clinical problems such as anemia. Anemia can be more severe due to several factors, such as trimester of pregnancy, type of work, education, infectious diseases and so on. Most of the pregnant women in the Kudus Regency are pregnant women who work in cigarette factories. Pregnant women who work in cigarette factories will have an impact on their pregnancy, based on the theory that tobacco as a raw material for cigarettes contains addictive substances that are harmful to health. The purpose of this study was to find out the description of hemoglobin in pregnant women working in the Djarum cigarette factory at the Mejobo Kudus Health Center. This type of research is descriptive. The research was carried out in May 2022 and the examination was carried out at the Mejobo Health Center. Sampling with purposive sampling technique as many as 25 respondents. Analysis and data processing using tables. The results obtained from 25 respondents mostly had an average hemoglobin level of 12.3 g/dl, where the majority of respondents had normal hemoglobin of 88%. The majority of respondents do not experience anemia, this can occur because when working pregnant women use complete APD, from head coverings, masks, and aprons to protect themselves.

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## Introduction

During pregnancy a woman is very susceptible to experiencing low levels of hemoglobin in the blood. Low hemoglobin values are associated with clinical problems such as anemia. The Centers for Disease Control and Prevention (CDC) defines anemia as a hemoglobin level lower than 11 gr/dl in the first and third trimesters, less than 10.5 gr/dl in the second trimester. Anemia can be more severe due to several factors, such as the third trimester of pregnancy. , type of work, education, infection and so forth. The majority of pregnant women in the Kudus Regency area are pregnant women who work in cigarette factories. Pregnant women who work in cigarette factories will have an impact on their pregnancy, based on the theory that tobacco as a raw material for cigarettes contains addictive substances that are harmful to health. This can be one of the factors causing the mother to have symptoms of anemia or anemia. Based on the background of the problems above, it prompted researchers to conduct research by taking the title "Description of Hb Levels of Pregnant Women Djarum Cigarette Factory Workers at the Mejobo Kudus Community Health Center".

## Method

### Research Tools and Materials

The tools used in this study were a hematology analyzer and a tourniquet.

Materials used in the venous blood study, 70% alcohol, 3 cc syringe, alcohol swab, plaster, EDTA tube, and hematology analyzer tool.

### Ways of working

### How to Take Venous Blood

The area to be taken for blood (median cubital vein) is cleaned with 70% alcohol cotton, let it dry and a tourniquet is placed on the upper arm, approximately above the elbow. The patient is asked to clench his fist so that the veins are clearly visible. The syringe needle is inserted into the vein with the needle eye facing up. After it appears that blood is flowing in the syringe, the syringe suction is withdrawn slowly until as much as 3 ml of blood can be obtained. Remove the tourniquet and take the cotton and place it over the puncture site. The needle and syringe are removed slowly, the puncture marks are pressed using alcohol cotton. The needle is removed from the syringe, and blood is drawn into the EDTA tube through the tube wall.

### How to Check Hb Levels using a Hematology Analyzer

Prepare an EDTA tube containing the patient's blood sample. Press the [MENU] key and select "count" then press enter. Press the [MODE] button then the examination method ("Whole Blood-ALL",'WB-WBC/HGH), or "WB-RBC/PLT" will appear on the top screen with a blue display. Then press the [F1] button to write down patient data, the blood sample in the EDTA tube is homogenized and inserted into the sample probe until it touches the bottom of the tube. Press the probe button for the calculation process and the examination results will appear on the screen, then the results are read.

## Results and Discussion

This research was carried out at the Mejobo Health Center Laboratory in Kudus Regency. The sample for the examination is the blood of pregnant women who carry out examinations at the Mejobo Health Center with EDTA anticoagulant. The data used in this research is primary data from the results of examination of hemoglobin levels of pregnant women who work in cigarette factories who carry out examinations at the Mejobo Kudus Health Center.

**Table 1.** Hemoglobin levels based on age in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Age | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| 20-29 | 12 (48%) | 1 (4%) | 1 (4%) | 14 (56%) |
| 30-39 | 8 (32%) | 1 (4%) | 0 (0) | 9 (36%) |
| >40 | 2 (8%) | 0 (0) | 0 (0) | 2 (8%) |
| Amount | 14 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 6, it is known that there are 12 pregnant women working in cigarette factories aged 20-29 who have normal hemoglobin levels with an average hemoglobin level of 13.4 g/dl.

**Table 2.** Hemoglobi levels based on the trimester of pregnancy in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Pregnancy Trimesters | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| Trimester I | 15 (60%) | 1 (4%) | 1 (4%) | 17 (68%) |
| Trimesters II | 4 (16%) | 1 (4%) | 0 (0) | 5 (20%) |
| Trimesters III | 3 (12%) | 0 (0) | 0 (0) | 3 (12%) |
| Amount | 22 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 7, it is known that there are 15 pregnant women working in a cigarette factory with a gestational age in the first trimester who have normal hemoglobin levels with an average hemoglobin level of 12.8 g/dl.

Table 3. Hemoglobin levels based on length of work in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Length of work | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| < 2 yrs | 11 (44%) | 1 (4%) | 1 (4%) | 13 (52%) |
| 2-5 yrs | 9 (36%) | 1 (4%) | 0 (0) | 10 (40%) |
| >5 yrs | 2 (8%) | 0 (0) | 0 (0) | 2 (8%) |
| Amount | 22 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 8, it is known that there are 11 pregnant women who work in cigarette factories with a length of service of <2 years who have normal hemoglobin levels with an average hemoglobin level of 13.0 g/dl.

## Discussion

The results of examination of hemoglobin levels in pregnant women working in the cigarette factory at the Mejobo Health Center showed that out of 25 respondents, most of the respondents had an average hemoglobin level of 12.3 g/dl, where the majority of respondents had a normal hemoglobin of 88%. This shows that the majority of respondents did not have anemia. The results of the hemoglobin levels of the respondents based on the age of the pregnant women showed that the majority of respondents aged 20-40 years were normal or had hemoglobin levels > 11.00 g/dl, or did not have anemia. The results of the respondents' hemoglobin levels based on the trimester of pregnancy showed that the majority of respondents with the first to third trimesters of gestation had normal hemoglobin levels, or did not experience anemia. The results of the respondents' hemoglobin levels based on the length of time pregnant women worked in cigarette factories showed that the majority of respondents with a length of service of <2 years to >5 years had normal hemoglobin levels, or did not experience anemia. Pregnant women who do not experience anemia even though they have worked in a factory for more than 5 years can occur because when working pregnant women use complete PPE, from head coverings, masks, and aprons to protect themselves.

In the study of examining hemoglobin levels of pregnant women who worked at the Djarum cigarette factory at the Mejobo Health Center, the incidence of anemia in pregnant women was still low, the percentage was 12%.

There are many ways that can be done to increase hemoglobin levels in pregnant women so that anemia does not occur which has a negative impact on the health of the mother and fetus in the womb, one of which is by using complete PPE when working in factories. Personal protective equipment is a must that must be carried out by the parties. djarum factory management in each region. The goal is to reduce the number of work accidents that might occur. Personal protective equipment provided by the Djarum factory SKT unit.

For pregnant women, it is better to carry out routine control of the midwife. Have regular check-ups to control fetal growth and the health of pregnant women, especially routinely checking hemoglobin levels in the blood so that they can be detected earlier if anemia occurs and can be treated immediately so as not to have a negative impact on the health of the mother and fetus in the womb.

## Conclusion

1. The average age based on 20-29 years has a hemoglobin level of 12.8 g/dl, while those aged 30-39 years have an average hemoglobin level of 11.9 g/dl, those aged > 40 years have an average hemoglobin level of 12.6 gr/dl .

2. The mean based on gestational age in the first trimester has a hemoglobin level of 12.4 g/dl, whereas in the second trimester the gestational age has an average hemoglobin level of 12.3 g/dl, in the third trimester the gestational age has an average hemoglobin level of 13.3 gr/dl.

3. The mean based on length of work <2 years has a hemoglobin level of 11.4 g/dl, while those with a length of work of 2-5 years have an average hemoglobin level of 12.5 g/dl, for a length of work > 5 years have an average hemoglobin level of 12.6 g /dl.

4. The majority of respondents did not experience anemia with a normal hemoglobin level of 88%.

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# Correlation of Nutritional Status Bades on Upper Arm Circumference (LiLa) of Pregnant Woment with Low Birth Weight Infants (LBW)

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## Abstract

Poor nutritional status of pregnant women is associated with adverse births including intrauterine growth disorders and low birth weight (LBW), which have a detrimental impact on the development of their lives. The purpose of this study was to find out about the relationship between upper arm circumference (LiLa) in pregnant women and low birth weight babies. This type of research is a type of quantitative analytic study using a cross-sectional design, by taking a sample with a total sample. The results of the research on the nutritional status of pregnant women showed that 35 respondents (34.3%) experienced CED and 67 respondents (65.7%) did not experience CED, 30 respondents had LBW babies (29.4%) and 72 respondents did not have LBW (70.6%). The relationship between the nutritional status of pregnant women and the incidence of LBW was found that most of the respondents who experienced CED had babies who were LBW, namely 16 respondents (45.7%) and the respondents who did not experience CED were mostly not gave birth to LBW babies, namely as many as 53 respondents (79.1%). The conclusion is that there is a relationship between the nutritional status of pregnant women based on Lila and the incidence of LBW at the Bangetayu Health Center, Semarang City

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## Introduction

Low Birth Weight Babies (LBW) according to the WHO definition, namely birth weight <2500 grams regardless of gestational age (Cutland et al., 2017). Infants with low birth weight (LBW) are the main determinants of newborn survival, infant morbidity, mortality, and the risk of developmental disabilities and non-communicable diseases in the future. Globally, WHO estimates that around 30 million low birth weight babies are born each year (23.4% of all births), and often face short and long term health consequences (Tassema et al., 2021).

The incidence rate for LBW in 2020 in Indonesia was 129,815 (3.1%) cases and the most common cause of neonatal death was low birth weight (LBW) (Kemenkes RI, 2021). Central Java Province, the incidence of LBW in 2021 is 22,240 cases which will increase in 2020 to 21,001 cases. The incidence of LBW in Semarang City is 449 cases in 2021 (BPS, 2021). Pregnant women really need sufficient energy and nutrients to meet the nutritional needs for fetal growth and meet the increased needs of the mother's body. Poor maternal nutritional status is associated with adverse births including intrauterine growth disorders and low birth weight (LBW), which have a detrimental impact on the development of life. (Woldeamanuel et al., 2019).

The degree of nutritional status can be seen from the main nutritional problems, such as Chronic Energy Deficiency, Iodine Deficiency, and Anemia. The parameter to determine the nutritional status of pregnant women is the maternal upper arm circumference (LILA) indicator. Chronic Energy Deficiency (KEK) is a state of energy deficiency for a long time. Chronic Energy Deficiency can be identified by measuring the Upper Arm Circumference with results <23.5 cm. This occurs due to an imbalance between intake and expenditure to meet energy needs (Maryani et al., 2019). Chronic Energy Deficiency (CED) is usually caused by a lack of energy and protein intake in pregnant women. Pregnant women who experience CED are at risk of giving birth to babies with low birth weight (LBW), then if they are not treated properly they will be at risk of experiencing stunting. According to research (Zaif et al., 2017), if there is a lack of nutritional status in early life it will have an impact on later life, such as stunted fetal growth (CHD), low birth weight (LBW), stunting, low endurance and risk of death (Mulianingsih et al., 2021).

Research from Restu, Sri et al (2017) states that there is a relationship between chronic energy deficiency in pregnant women and low birth weight babies (LBW). Pregnant women with chronic energy deficiency (CED) have four times the risk of giving birth to babies with low birth weight ( Restu et al., 2017. This is in line with research conducted by Maryani, Febri (2019) namely pregnant women with malnutrition have a 6.5 greater probability of giving birth to babies with low birth

weight than pregnant women with very good nutrition ( Maryani et al., 2019). However, research from Mulianingsih, et al (2021) found that there was no significant relationship between maternal nutritional status and birth weight. This could mean that maternal nutritional status did not correlate with birth weight, as seen P value of 0.084. This is because birth weight is not only influenced by the nutritional status of the mother, but the causes of low birth weight are most often it is premature birth or problems at gestational age (Mulianingsih et al., 2021).

WHO has made several efforts to prevent low birth weight babies (LBW), including during preconception, namely by managing birth spacing, preconception daily folic acid supplementation to reduce congenital defects and promotion of smoking cessation during pregnancy. During pregnancy i.e. with monitoring of fetal growth and evaluation of newborn size at all levels of care, integrated into the latest WHO model of antenatal care, Daily iron and folic acid supplementation for women during pregnancy, Balanced protein-energy supplementation and Daily calcium supplementation for women in settings with low calcium intake (WHO, 2012).

Efforts to prevent and control LBW in Indonesia can be done in a number of ways, namely by providing adequate health education about LBW to pregnant women. In addition, it can also carry out supervision and monitoring, then make efforts to prevent hypothermia in infants and help achieve normal growth. As for other efforts, such as providing free therapy that can be done by the mother, measuring the nutritional status of pregnant women, calculating and preparing for steps in health (Antenatal Care), and monitoring the condition of the baby from birth who has experienced intrauterine growth retardation. (Novitasari et al., 2020).

## Method

This type of research is a type of quantitative analytic research using a cross sectional design. This research took place at the Bangetayu Community Health Center, Semarang City. The data were collected using retrospective medical records of the respondents. The sampling technique used total sampling / all patients who gave birth at the Bangetayu Health Center, Semarang City in September 2022, namely 102 respondents who had fulfilled. The inclusion criteria in this study were all pregnant women who gave birth to babies with LBW at the Bangetayu Health Center, Semarang City. Exclusion criteria in this study were incomplete patient medical records, twin pregnancies and stillbirths. Secondary data was obtained from the patient's medical record, then collected by the midwife appointed by the researcher as the enumerator. data collection using questionnaires and checklists provided by researchers. Data analysis techniques used the Chi-Square statistical test

## Result and Discussion

### The nutritional status of pregnant women

**Table 1**. Frequency Distribution Based on Nutritional Status based on Upper Arm Circumference (LiLa) of Pregnant Women at Bangetayu Health Center, Semarang City

| No | Status Gizi | Distribusi | |
|----|-------------|------|------|
| | | F | % |
| 1. | Kek | 35 | 34.3 |
| 2. | Tidak Kek | 67 | 65.7 |
| | Total | 102 | 100.0 |

Respondents who experienced SEZ were 35 respondents (34.3%) and those who did not experienced SEZ were 67 respondents (65.7%) (Table 1). The nutritional status of pregnant women in this study was carried out by measuring the upper arm circumference of pregnant women. The results of the research that has been done show that there are still some pregnant women who experience CED or chronic energy deficiency. This also means that the nutritional status of pregnant women is not all of them have good nutrition.

Nutritional status in the mother can be seen in anthropometric measurements in pregnant women such as low upper arm circumference or in laboratory tests found anemia or certain micronutrient deficiencies. Poor nutritional status during pregnancy is not only detrimental to the mother's health but also affects the health of the fetus and newborn. A recent study conducted in India reported an increased risk of low birth weight in babies born to women who had anemic pregnancies, and

women who were underweight. Therefore, the nutritional status of the mother before and during pregnancy is very important for a healthy pregnancy outcome (Kpewou et al., 2020). Upper arm circumference and birth weight can be used as markers of skinfold thickness, which reflect total body fat in pregnant women and infants respectively (Babu et al., 2021). Upper arm circumference (LiLA) has been recognized as a rapid tool for monitoring nutritional status, and is strongly associated with BMI. This can be applied to monitor maternal malnutrition and fetal growth. Upper arm circumference can be used as an assessment of protein intake and storage, associated with severe malnutrition (Miele et al., 2021).

This research is in line with research conducted by Fabiana Meijon Fadul (2019) which states that the nutritional status of pregnant women greatly influences the growth of the fetus being conceived. If the mother's nutritional status is normal during pregnancy, it is likely that she will give birth to a healthy, full-term baby with normal weight. The quality of babies born is highly dependent on the nutritional state of the mother during pregnancy (Fabiana Meijon Fadul, 2019). Research from Erlyna Eva Sari, et al (2016) states that pregnant women who suffer from CED have a greater risk of illness, especially in the third trimester compared to normal pregnant women. As a result, they have a greater risk of giving birth to babies with LBW (Evasari &

Nurmala, 2016). Research by Hanny Desmiati (2020) states that pregnant women who are at risk of KEK are pregnant women who have an upper arm circumference (LILA) measuring less than 23.5 cm. the limit for LILA measurements in the WUS group with CED risk in Indonesia is 23.5 cm (Desmiati et al., 2020). Maternal nutritional status before and during pregnancy can affect the growth of the fetus being conceived. If the mother's nutritional status is normal before and during pregnancy, it is likely that she will give birth to a healthy, full-term baby with normal weight. Poor fetal growth from pregnant women with CED conditions will result in babies with low birth weight (Ruaida & Soumokil, 2018).

**LBW Incident**

**Table 2**. Frequency Distribution Based on LBW Incidence at Bangetayu Health Center, Semarang City

| No | Kejadian BBLR | Distribusi | |
|---|---|---|---|
| | | F | % |
| 1. | BBLR | 30 | 29,4 |
| 2. | Tidak BBLR | 72 | 70,6 |
| | Total | 102 | 100.0 |

Thirty respondents had LBW babies (29.4%) and 72 respondents did not have LBW babies (70.6%) (Table 2). Although most of the respondents gave birth to babies who were not LBW, the results of the study showed that 30 (29.4%) respondents

still experienced LBW babies. The incidence of LBW due to Chronic Energy Deficiency (CED) in pregnant women begins with pregnant women suffering from CED which causes the volume of blood in the mother's body to decrease and the cardiac output of pregnant women is insufficient, causing a decrease in blood flow to the placenta. Reduced blood flow to the placenta causes two things, namely reduced transfer of nutrients from the mother to the placenta which can cause fetal growth retardation and the growth of a smaller placenta which causes babies with low birth weight (LBW) (Sulistiani, 2014).

Many LBW events occur due to several factors, including maternal factors, such as disease, socioeconomic conditions, nutritional status, and lifestyle. Fetal factors such as chromosomal abnormalities, radiation, multiple pregnancies, infections. Placental factors and environmental factors. Efforts made by health workers in LBW cases are to keep the baby warm because LBW babies are very susceptible to hypothermia, besides that the kangaroo method can be used, some are even kept in an incubator if the baby's condition is still unstable. This is in accordance with the opinion of Puspitaningrum (2018) that the complication of LBW babies is hypothermia, which is characterized by temperatures below 36°C, cold skin and cyanosis (Puspitaningrum, 2018).

**The Relationship between Nutritional Status based on LiLa in Pregnant Women with LBW Incidence at Bangetayu Health Center, Semarang City**

**Table 3**. Relationship of Nutritional Status based on LiLa in Pregnant Women with Low Birth Weight Incidence at the Bangetayu Health Center, Semarang City

| Status Gizi | Kejadian BBLR | | | | Total | | P Value |
|---|---|---|---|---|---|---|---|
| | Ya | | Tidak | | F | % | |
| | F | % | F | % | | | |
| KEK | 16 | 45,7% | 19 | 54,3% | 35 | 100% | 0.009 |
| Tidak KEK | 14 | 20,9% | 53 | 79,1% | 67 | 100% | |
| Total | 30 | 29,4% | 72 | 70,6% | 102 | 100% | |

Respondents who experienced CED mostly had LBW babies, namely as many as 16 respondents (45.7%) and respondents who did not experience CED most did not give birth to LBW babies, namely 53 respondents (79.1%). Based on the results of the Chi-Square test, there is a relationship between the nutritional status of pregnant women based on Lila and the incidence of LBW at the Bangetayu Health Center, Semarang City (p-value = 0.009) (Table 3). This is in line with the theory which suggests that if the mother's LILA before pregnancy is less than 23.5 cm, the pregnancy should be postponed because of the risk of giving birth to LBW (Kusumaningrum & Daryanti, 2022

This research is in line with research conducted by Sri Restu, et al (2017) that there is a relationship between KEK in pregnant women and LBW. Pregnant women with CED have four times the risk of giving birth to babies with low birth weight (Restu et al., 2017). Pregnant women who experience malnutrition or CED will affect the growth of the fetus they contain. This will affect the low birth weight babies. A small baby's weight will significantly affect the death of a bigger baby. A study in Guatemala (United States) showed that the lower the newborn's weight, the higher the mortality rate for the baby (Fatimah & Yuliani, 2019). Research from Ekowati, et al (2017) states that pregnant women with Chronic Energy Deficiency (KEK) are 5.6 times more likely to give birth to babies with LBW. KEK during pregnancy is caused by a lack of nutrients that enter the body. KEK during pregnancy can also reduce blood volume thereby reducing cardiac output and blood volume to the placenta. Lack of blood pumped to the placenta reduces the flow of nutrients from mother to baby and can cause fetal growth retardation. Measurement of upper arm circumference (Lila) is one method that can be used to detect KEK in pregnant women (Ekowati et al., 2017).

## Conclusion

The conclusion of this research is that there is a relationship between the nutritional status of pregnant women based on Lila and the incidence of LBW at the Bangetayu Health Center, Semarang City (p-value = 0.009)

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