The Effect of Anemia Prevention and Treatment Education on Knowledge and Attitude of Pregnant Women: A Case Study of Pregnant Women in Muna Regency

Nindy Elliana Benly[1] and Rosminah Mansyarif[2]

[1]Department of Midwifery
Akademi Kebidanan Paramata Raha, Indonesia
Email. nindyellyana@yahoo.co.id

[2]Department of Midwifery
Akademi Kebidanan Paramata Raha, Indonesia
Email. rosminamansyarif@yahoo.co.id

Abstract—**This study aims to determine (1) the effect of education on prevention and treatment of anemia on knowledge of pregnant women; (2) the effect of education on prevention and treatment of anemia on the attitudes of pregnant women; and (3) the relationship between education on prevention and treatment of anemia on knowledge and attitudes of pregnant women. The study used a descriptive quantitative approach. The research sample was pregnant women who suffered from anemia (having a low HB < 11gr) in the working area of the Batalaiworu health center, Muna Regency, which was obtained by random sampling technique. The data collection technique in this research uses questionnaires and documentation. The data analysis technique used a bivariate test in a T-test. The analysis results found that the prevention and treatment of anemia before education was 67.73 with a standard deviation of 26.72; after education, it was 79.98 with a standard deviation of 15.74. There were differences in attitudes after the education of 18.79, with a P-Value of 0.000. It indicates that education on the prevention and management of anemia in pregnant women is very important and has a significant impact on the health pattern of pregnant women.**

Keywords— Anemia, Pregnant women, Prevention, Handling

I. INTRODUCTION

Every day, around 830 mothers worldwide die from complications related to pregnancy and childbirth (Nik, 2021). It is estimated that in 2015, around 303,000 women died during and after pregnancy and childbirth (Nazila, 2019). Several countries have halved maternal mortality rates in sub-Saharan Africa since 1990 (Sukarata & Yuliana, 2018). In other regions, including Asia and North Africa, more incredible progress has reduced maternal mortality. Between 1990 and 2015, the global maternal mortality ratio (the number of maternal deaths per 100,000 live births) decreased by only 2.3% per year. In 2013, Basic Health Research Data (Riskedas Indonesia) 2013 stated that 21.7% of the Indonesian population was anemic. Of that number, anemia occurred in pregnant women, meaning one in three pregnant women suffers from anemia (Sepduwiana & Sianipar, 2018). Meanwhile, based on data from Riskesdas in 2018, it was stated that the percentage of pregnant women who had anemia increased compared to Riskesdas in 2013 to 48.9% (Rahma et al. 2020; Oktavia & Nurlaela, 2021). Anemia in pregnancy is a health problem that needs special attention because it is associated with an increased risk of maternal morbidity and mortality during childbirth (Widyaningrum, 2018).

Corresponding Author: Nindy Elliana Benly

Knowledge and attitudes are factors that stimulate or stimulate the realization of health behavior. If pregnant women know and understand the consequences of anemia and how to prevent anemia, they will have good health behaviors to avoid various consequences or risks of anemia during pregnancy (Purbadewi & Ulvie, 2013; Suwirna et al. 2021). Such health behavior affects reducing the incidence of anemia in pregnant women. Knowledge of pregnant women about nutrition has an important role in fulfilling maternal nutrition. Good nutrition for pregnant women is needed so that fetal growth runs rapidly and does not experience obstacles (Soetjiningsih, 1995; Puspitaningrum, 2017). Lack of knowledge of pregnant women about nutrition benefits during pregnancy can cause pregnant women to lack nutrition. Iron deficiency anemia can occur if pregnant women experience malnutrition, especially iron and folic acid. Anemia is a condition where the erythrocyte mass of circulating hemoglobin mass cannot fulfill its function to provide oxygen for body tissues (Fijriayah & Fitrianto, 2016). The World Health Organization (WHO) states that the diagnosis of anemia in pregnancy is made when the hemoglobin (Hb) level is <11g/dL (7.45 mmol/L) and the hematocrit is <0.33 (Alamsyah, 2020). Anemia during pregnancy is usually more related the iron deficiency than anemia, as iron is absorbed from food and reserves in the body, which is usually not sufficient for the mother's needs. So that additional iron and folic acid intake can help restore hemoglobin levels (Susilongtyas, 2022).

It results in a high MMR due to a lack of nutritional intake during pregnancy. Southeast Sulawesi recorded that in 2017 the MMR was 149/100,000 KH, and in 2018 the MMR in Southeast Sulawesi was 122/100,000 KH (Southeast Sulawesi Health Office). Meanwhile, in Muna Regency, the Maternal Mortality Rate (MMR) recorded that AKI in 2017 was six people or 160 per 100,000 KH caused by bleeding (33.3%), infection (16.7%), and others (50%). In 2018, AKI amounted to 5 people, or 158 per 100,000 KH, caused by hypertension (16.7%), hyperemesis (33.3%), post-SC infection (16.7%), and hypovolemic shock (16.7%). MMR in 2019 was 5, or 128 per 100,000 KH due to bleeding (40%). While the Infant Mortality Rate in 2017 was 16 people or 4/1,000 KH, in 2018, as many as 27 people or 7 per 1,000 KH caused by asphyxia 14%, LBW 11%, congenital abnormalities 4% and IMR in 2019 Muna Regency amounted to 36 people or 9 per 1000 KH with IMR causes, namely LBW 14%, asphyxia 14%, congenital abnormalities 14% and other causes (Muna District Health Office, 2019).

Detailed data obtained from the Batalaiworu Health Center shows that the number of pregnant women in 2018 was 253, pregnant women who experienced anemia were 77 people. In 2019 January-May, the number of pregnant women who experienced anemia was 23 people. Anemia conditions can increase the risk of maternal death during childbirth, give birth to babies with low birth weight, make the fetus and mother susceptible to infection, miscarriage, and premature babies. Pregnant women find it very difficult to get enough iron even tho they consume foods high in iron every day (Nurhayati et al. 2015). This is because iron is a nutrient that cannot be obtained in adequate amounts from the food consumed during pregnancy. Factors contributing to anemia in pregnant women include age, parity, education level, socioeconomic status, and adherence to Fe tablet consumption. In contrast, factors related to the incidence in pregnant women include Fe consumption, gestational distance, nutritional status, and knowledge. Various efforts have been made to prevent and treat anemia in pregnant women. However, they have not shown a significant reduction in anemia rates. One of the factors that cause anemia is still high is the low adherence of pregnant women to consuming Fe tablets.

Therefore, an effort is needed to prevent anemia in pregnant women. One of them is thru education programs for pregnant women regarding handling anemia during pregnancy. Education about the prevention of anemia is one of the efforts that can increase knowledge and change attitudes to be positive so that, in the end, pregnant women can make various efforts to prevent anemia. Based on the above background, the authors are interested in researching the influence of anemia prevention and treatment education on the knowledge and attitudes of pregnant women in the working area of the Batalaiworu Health Center, Muna Regency. This study is expected to be a reference source related to the prevention and treatment of pregnant women dealing with anemia during pregnancy.

II. Method

The approach used in this study is a descriptive quantitative approach. The research design with a quantitative approach uses the pre-post experimental design with one group method with the type of pre and post-test group, namely a technique that only uses one group of subjects. Measurements are carried out before and after receiving treatment. The population in this study was pregnant women in Muna Regency. The samples in this study were pregnant women who suffered from anemia (having low HB < 11gr) in the working area of the Batalaiworu health center. The random sampling technique made sample selection easier. This research activity was implemented by visiting the homes of pregnant women registered at the Batalaiworu Health Center, Muna

Regency. Data collection techniques in this study used questionnaires and documentation. Questionnaires in this study were used to determine the knowledge and attitudes of pregnant women with anemia toward anemia prevention. Meanwhile, used data collection using documentation to record Hb levels in pregnant women before and after being given education about anemia prevention. The instrument used in this study was a questionnaire adapted from research conducted by Fadilah & Suhardi (2012) about the description of anemia conditions in pregnant women based on the effect of determinants and measurement of Hb levels. Meanwhile, this study's data analysis technique uses SPSS 20, using bivariate in the form of dependent t-test/paired t-test with an error degree of 5% (p-value <0.05).

III. RESULTS AND DISCUSSION

Most anemia in pregnancy is caused by iron deficiency and acute bleeding, and it is not uncommon for the two to interact (Kondi, 2017; Sari, 2020). Lack of this nutrient is the cause of 75% of cases of anemia in pregnancy. Therefore, education related to preventing and treating anemia is needed for pregnant women. From the results of the investigation, it was found that:

3.1. Respondents' Knowledge Level on Prevention and Management of Anemia in Pregnant Women Before and after Education

TABLE I. BEFORE AND AFTER EDUCATION, THE FREQUENCY DISTRIBUTION OF RESPONDENTS' KNOWLEDGE LEVEL ABOUT THE PREVENTION AND TREATMENT OF ANEMIA IN PREGNANT WOMEN

Level of knowledge	Before		After	
	F	%	*F*	%
Less	25	67,57	7	18,92
Enough	7	18,92	18	48,65
Good	5	13,51	12	32,43
Total	37	100	37	100

Note: *F* (Frequency)

Based on Table 1, it is known that respondents' knowledge about the prevention and treatment of anemia before education is still very lacking. 67.57% of pregnant women who suffer from anemia in the Batalaiworu sub-district have less knowledge about anemia. However, after education, there was an increase in the frequency of respondents with knowledge about the prevention and treatment of anemia after giving instruction. As many as 48.65% of pregnant women in the Batalaiworu sub-district have sufficient knowledge about the prevention and treatment of anemia, and 32.43% have good knowledge about the prevention and treatment of anemia. It is illustrated by the graph depicted in Figure 1.
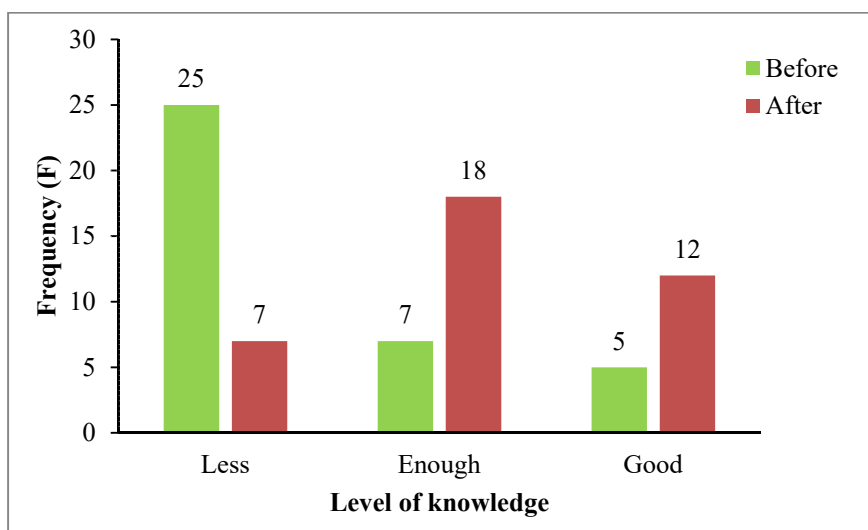
Figure 1. Frequency of distribution of education to pregnant women

Based on Figure 1, there is an increase in frequency from before education, which amounted to 25 people; after education, it decreased to 5 people. There was an increase in understanding of the prevention and treatment of anemia after education. There were previously only seven people in the good category and 18 people in the fairly good category. It indicates that providing education to pregnant women influences the process of handling and preventing anemia in pregnant women. This is in line with studies conducted by Amanupunyo & Noya (2021) and Munawaroh et al. (2019) that education for pregnant women makes a significant contribution to the prevention of anemia during pregnancy. Meanwhile, Nurmayani et al. (2021) reported that pregnant women who attended were very enthusiastic. After processing the questionnaire before and after being given health education, there was an increase in knowledge of preventing anemia during pregnancy. It can be seen from the findings that there is an increase in understanding regarding the prevention of anemia in pregnant women. Like in the study conducted by Abas et al. (2021), there was an increase in maternal knowledge about anemia from 50% before counseling to 90% after counseling.

3.2. Respondents' attitudes about the prevention and treatment of anemia in pregnant women before education

TABLE II.   BEFORE AND AFTER EDUCATION, THERE WAS A FREQUENCY DISTRIBUTION OF RESPONDENTS' ATTITUDES ABOUT PREVENTING AND TREATING ANEMIA IN PREGNANT WOMEN.

Level attitudes	Before		After	
	F	*%*	*F*	*%*
Unfavorable (Negative)	30	81,09	15	40,54
Favorable (Positive)	7	18,91	22	59,45
Total	37	100	37	100
Note: F (Frequency); Unfavorable (Negatif); Favorable (Positif)				

Table 2 shows the frequency distribution of respondents' attitudes about preventing and treating anemia in pregnant women before and after education. It shows that as many as 81.09% of pregnant women in the Batalaiworu sub-district are still unfavorable toward anemia. Meanwhile, 59.45% of pregnant women have demonstrated a favorable attitude toward preventing and treating anemia. The same thing happened to the attitudes of pregnant women; after education, the attitudes of pregnant

women were more patterned regarding how to prevent anemia during pregnancy. In their study, Devi et al. (2019) report that pregnant women have sufficient knowledge about anemia and prevention and have a positive attitude toward preventing anemia in pregnancy. While Nadziroh et al. (2020) revealed that health education media affect a person's attitude. This media also increases the interest of the target in forwarding the message to others. Changes in the respondents' attitudes indicate that the intervention was effective for the patient. This success is supported by various factors, including strategy, engineering, and the media used as a tool. The impact of nutrition education will also increase awareness about the risk of iron deficiency anemia. For example, a sense of trust, a desire to recover from anemia, and smooth delivery are examples of an attitude formed to overcome anemia. Pregnant women must have confidence in their ability to manage anemia.

3.3. Average Knowledge of Respondents about Prevention and Management of Anemia in Pregnant Women Before and After Education

TABLE III.   BEFORE AND AFTER EDUCATION, THE AVERAGE KNOWLEDGE OF RESPONDENTS ABOUT THE PREVENTION AND MANAGEMENT OF ANEMIA IN PREGNANT WOMEN WAS LOW.

Level of knowledge	Mean	Standar Deviasi	P-Value
Before education	57,45	15,78	0.00
After education	66,81	10,43	

Table 3, it is known that the average value of respondents' knowledge about the prevention and treatment of anemia before education is 67.45 with a standard deviation of 15.78, while the average knowledge after education is 46.81 with a standard deviation of 10.43. There are differences in ability before and after education of 8.06 with a P-Value of 0.000. It is in line with a study conducted by Farida (2019) that found there was an increase in knowledge related to anemia prevention from subject 1 in the less to the good category, and subject II increased from the poor to the good category. Furthermore, Safitri (2020) wrote that with anemia prevention education, pregnant women would learn to prevent and recognize high risks or complications of anemia in early pregnancy. Meanwhile, Za & Hardewi (2021) suggested that health follow-up on anemia in pregnant women significantly influenced the knowledge gained.

3.4. Average Respondents' Attitudes about Prevention and Treatment of Anemia in Pregnant Women Before and After Education.

TABLE IV.   BEFORE AND AFTER EDUCATION, AVERAGE RESPONDENTS' ATTITUDES ABOUT THE PREVENTION AND TREATMENT OF ANEMIA IN PREGNANT WOMEN

Attitudes	Mean	Standar Deviasi	P-Value
Beforeeducation	67,73	26,72	0.00
After education	79,98	15,74	

As shown in Table 4 above, the average value of respondents' attitudes about the prevention and treatment of anemia before education is 67.73 with a standard deviation of 26.72, while after education, it is 79.98 with a standard deviation of 15.74, and there are differences in attitudes before and after education. 18.79 with a P-Value of 0.000. Some think that in a study conducted by Arnianti et al. (2020), the average knowledge score increased after being given educational media in the form of a risk detection module for anemia in pregnancy. The knowledge variable was measured twice before being given module treatment and after being given module treatment.

The results of this study are in line with the results of research by Solehati et al. (2018) that health education affects the average knowledge of respondents in early detection and prevention of anemia in pregnant women. In their writings, Triana et al.

(2022) state an effect of providing health education about anemia in pregnant women with anemia prevention behavior in pregnancy. This education aims to increase the knowledge and attitudes of pregnant women about the prevention and treatment of anemia in pregnant women. With increased knowledge and supported by a supportive attitude, it is hoped that pregnant women will consciously prevent and treat anemia. Meanwhile, Sukmawati et al. (2019) reported that preventing anemia in pregnant women includes getting enough rest, consuming nutritious foods containing lots of Fe, having at least four pregnancy check-ups, and consuming 90 tablets of Fe during pregnancy.

Efforts to prevent and treat anemia in pregnant women can be carried out optimally if pregnant women and their families behave positively toward these efforts. According to the theory of Wibowo et al. (2012), changes in a person's behavior are influenced by their knowledge and attitudes. In line with the research of Iswanto et al. (2012), there is a significant relationship between the ability of pregnant women to develop Fe deficiency anemia and the level of compliance of pregnant women in consuming Fe tablets. Education on the prevention and treatment of anemia in pregnant women in an effort to convey information about the importance of preventing and treating anemia.

IV. CONCLUSION.

Based on the investigation results, it was found that education on the prevention and treatment of anemia in pregnant women had a significant effect on knowledge and attitudes. This is evidenced by the results of statistical test analysis produced with a P-value of 0.000. In addition, from the analysis results, it was found that the results of education in the form of knowledge gave the largest contribution in the fairly good category, with a percentage of 48.65%. In comparison, it was 59.45% (favorable). For the next researcher, it can be carried out on an enormous scale, not only in one public health center but also on the whole, and add several variables so that the relationship between several subjects can be clearly obtained.

REFERENCES

[1]. Abas, I., Ramadhan, K., Manggasa, D. D., & Rantesigi, N. (2021). Edukasi Pencegahan Anemia pada Ibu Hamil. *Madago Community Empowerment for Health Journal*, *1*(1), 26-31. https://doi.org/10.33860/mce.v1i1.662

[2]. Alamsyah, W. (2020). Faktor-faktor yang Berhubungan dengan Kejadian Penyakit Anemia pada Ibu Hamil Usia Kehamilan 1-3 Bulan Diwilayah Kerja Puskesmas Bontomarannu Kabupaten Gowa. *Jurnal Inovasi Penelitian*, *1*(2), 41-48. https://doi.org/10.47492/jip.v1i2.48

[3]. Amanupunnyo, N. A., & Noya, L. H. (2021). Pencegahan Anemia Pada Kehamilan di Wilayah Kerja Puskesmas Kosler. *Global Health Science (GHS)*, *5*(3), 113-120. http://dx.doi.org/10.33846/ghs5304

[4]. Arnianti., Manapa, E. S., Ahmad, M., Riu, D. S., Nontji, W., & Hidayanti, H. (2020). Pengaruh Modul Deteksi Risiko Anemia pada Kehamilan terhadap Pengetahuan Ibu Hamil. *Oksitosin: Jurnal Ilmiah Kebidanan*, *7*(2), 120-133. https://doi.org/10.35316/oksitosin.v7i2.675

[5]. Devi, D., Lumentut, A. M., & Suparman, E. (2021). Gambaran Pengetahuan dan Sikap Ibu Hamil dalam Pencegahan Anemia pada Kehamilan di Indonesia. *e-CliniC*, *9*(1). https://doi.org/10.35790/ecl.v9i1.32415

[6]. Fadila, I., & Suhardi, D. A. (2015, October). PETA PENGARUH FAKTOR Determinan Terhadap Anemia Ibu Hamil Berdasarkan Pengukuran Kadar Hb. In *Prosiding Seminar Nasional MIPA*.

[7]. Farida, L. N. (2019). Penanganan Anemia Pada Ibu Hamil dengan Pemberian Edukasi dan Suplementasi Tablet Besi. *JIKO (Jurnal Ilmiah Keperawatan Orthopedi)*, *3*(2), 64-69. https://doi.org/10.46749/jiko.v3i2.31

[8]. Fajriyah, N. N., & Fitriyanto, M. L. H. (2016). Gambaran tingkat pengetahuan tentang anemia pada remaja putri. *Jurnal Ilmiah Kesehatan*, *9*(1), 97336.

[9]. Iswanto, B., Ichsan, B., & Ermawati, S. (2012). Hubungan Pengetahuan Ibu Hamil tentang Anemia Defisiensi Besi dengan Kepatuhan Mengkonsumsi Tablet Besi di Puskesmas Karangdowo, Klaten.

[10]. Kondi, M. (2017). Faktor-Faktor yang Mempengaruhi Anemia pada Ibu Hamil di Puskesmas Padediwatu Kabupaten Sumba Barat. *CHMK Midwifery Scientific Journal*, *1*(1). https://doi.org/10.37792/midwifery.v1i1.288

[11]. Munawaroh, A., Nugraheni, S. A., & Rahfiluddin, M. Z. (2019). Pengaruh Edukasi Buku Saku Terhadap Perilaku Asupan Zat Besi Ibu Hamil Terkait Pencegahan Anemia Defisiensi Besi (Studi pada Ibu Hamil Trimester II Akhir di Wilayah Kerja Puskesmas Bangetayu Kota Semarang). *Jurnal Kesehatan Masyarakat (e-Journal)*, *7*(4), 411-419.

[12]. Nadziroh, I., Anwar, M. C., & Sudirman, S. (2020). The Effect of Application Anemia Management Module On Improving Maternal Behaviors and Hemoglobin Level among Pregnant Women with Anemia. *International Journal of Nursing and Health Services (IJNHS)*, *3*(5), 576-587. https://doi.org/10.35654/ijnhs.v3i5.330

[13]. Nazlia, U, D. (2019). *Analisis Determinan Antara Pada Kasus Kematian Ibu Di Kota Tasikmalaya Tahun 2018* (Doctoral dissertation, Universitas Siliwangi).

[14]. Nik, L. (2021). Determinan Usia Dan Wilayah Tempat Tinggal Terahadap Rujukan Pada Persalinan Dengan Komplikasi Di Indonesia. *Jurnal Kebidanan*, *10*(1), 54-58. https://doi.org/10.35890/jkdh.v10i1.175

[15]. Nurhayati, N., Halimatusakdiah, P. K. A., & Asniah, A. (2015). Pengaruh Asupan Tablet Zat Besi (Fe) Terhadap Kadar Haemoglobin (Hb) Pada Ibu Hamil Di Puskesmas Kopelma Darussalam Tahun 2014. *Idea Nursing Journal*, *6*(1), 76-82. https://doi.org/10.52199/inj.v6i1.6644

[16]. Nurmayani, W., Oktaviani, E., Purqoti, D. N., & Syamdarniati, S. (2021). Edukasi Pada Ibu Hamil Untuk Mencegah Anemia. *Jurnal Empathy Pengabdian Kepada Masyarakat*, 69-74. https://doi.org/10.37341/jurnalempathy.v2i1.45

[17]. Oktavia, A. D., & Nurlaela, E. (2021, December). Literature Review: Hubungan Status Gizi dengan Kejadian Anemia pada Ibu Hamil. In *Prosiding Seminar Nasional Kesehatan* (Vol. 1, pp. 1224-1232).

[18]. Purbadewi, L., & Ulvie, Y. N. S. (2013). Hubungan tingkat pengetahuan tentang anemia dengan kejadian anemia pada ibu hamil. *Jurnal Gizi*, *2*(1).

[19]. Puspitaningrum, E. M. (2017). Hubungan Pengetahuan Dengan Status Gizi Ibu Hamil Di Puskesmas Tanjung Pinang Kota Jambi. *JI-KES (Jurnal Ilmu Kesehatan)*, *1*(1). https://doi.org/10.33006/ji-kes.v1i1.53

[20]. Rahmah, M., Fitria, M., & Sulaeman, A. (2020). *Gambaran Sifat Organoleptik Dan Nilai Gizi Velva Kacang Hijau (Vigna Radiata) Dan Jambu Biji (Psidium Guajava) Sebagai Alternatif Makanan Kaya Zat Besi Dan Vitamin C* (Doctoral dissertation, Politeknik Kesehatan Kemenkes Bandung).

[21]. Safitri, S. (2020). Pendidikan Kesehatan tentang Anemia kepada Ibu Hamil. *Jurnal Abdimas Kesehatan (JAK)*, *2*(2), 94-99. http://dx.doi.org/10.36565/jak.v2i2.88

[22]. Sari, I. D. (2020). Faktor Yang Mempengaruhi Kejadian Anemia Pada Ibu Hamil Trimester III Di Klinik Pratama Mitra Keluarga, Dusun Paladesa Melati Ii Perbaungan. *Jurnal Kebidanan Flora*, *13*(1).

[23]. Sepduwiana, H., & Sianipar, R. (2018). Hubungan Lama Menstruasi Terhadap Kadar Hemoglobin Pada Mahasiswi Di Prodi D-III Kebidanan Universitas Pasir Pengaraian Tahun 2018. *Jurnal Martenity and Neonatal*, *2*(5), 318-318.

[24]. Soetjiningsih (1995). *Tumbuh Kembang Anak*. Jakarta: Buku Kesehatan EGC

[25]. Solehati, T., Sari, C. W. M., Lukman, M., & Kosasih, C. E. (2018). Pengaruh Pendidikan Kesehatan Terhadap Pengetahuan Deteksi Dini Dan Pencegahan Anemia Dalam Upaya Menurunkan AKI Pada Kader Posyandu. *Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal)*, *4*(1), 7-12. https://doi.org/10.33755/jkk.v4i1.75

[26]. Sukarta, A., & Yuliana, Y. (2018). Pengetahuan Ibu Hamil Tentang Perubahan Dan Adaptasi Psikologi Trimester III. *JIKI Jurnal Ilmiah Kesehatan IQRA*, *6*(2), 104-111.

[27]. Sukmawati, S., Mamuroh, L., & Nurhakim, F. (2019). Pengaruh Edukasi Pencegahan dan Penanganan Anemia Terhadap Pengetahuan dan Sikap Ibu Hamil. *Jurnal Keperawatan BSI*, *7*(1). https://doi.org/10.31311/jk.v7i1.4689

[28]. Susiloningtyas, I. (2022). Pemberian zat besi (Fe) dalam Kehamilan. *Majalah Ilmiah Sultan Agung*, *50*(128), 73-99.

[29]. Suwirna, D., Lindayani, I. K., & Sriasih, N. G. K. (2021). Gambaran Pengetahuan Ibu Hamil Tentang Anemia Dalam Kehamilan Di Unit Pelaksana Teknis Daerah Puskesmas Sukawati I Gianyar. *Jurnal Midwifery Update (MU)*, *3*(1), 1-7. https://doi.org/10.32807/jmu.v3i1.102

[30]. Triana, A. K., Rahmawati, N., & Syafrullah, H. (2022). Tingkat Pengetahuan Ibu Hamil Tentang Pencegahan & Pengobatan Anemia Defisiensi Besi Sebelum Dan Sesudah Penyuluhan Di Pmb Bd. I Kabupaten Bandung. *Zona Kebidanan: Program Studi Kebidanan Universitas Batam*, *12*(1), 73-82. http://dx.doi.org/10.37776/zkeb.v12i1.822

[31]. Wibowo, C. D. T., Notoatmojo, H., & Rohmani, A. (2012). Hubungan Antara Status Gizi dengan Anemia pada Remaja Putri di Sekolah Menengah Pertama Muhammadiyah 3 Semarang. *Jurnal Kedokteran Muhammadiyah*, *1*(2).

[32]. Widyaningrum, D. A., & Romadhoni, D. A. (2018). Riwayat anemia kehamilan dengan kejadian stunting pada balita di Desa Ketandan Dagangan Madiun. *Medica Majapahit (Jurnal Ilmiah Kesehatan Sekolah Tinggi Ilmu Kesehatan Majapahit)*, *10*(2).

[33]. ZA, R. N., & Hardewi, R. (2021). Pengaruh Penyuluhan Kesehatan Tentang Anemia Terhadap Pengetahuan Ibu Hamil Di Wilayah Kerja Puskesmas Lamteuba Kabupaten Aceh Besar. *Journal Of Healthcare Technology And Medicine*, *7*(1), 318.