

PAPER NAME

**PROSIDING_the_2nd_International_Confe
ren (icnph).pdf**

WORD COUNT

2894 Words

CHARACTER COUNT

14804 Characters

PAGE COUNT

11 Pages

FILE SIZE

294.2KB

SUBMISSION DATE

May 10, 2022 10:33 PM GMT+8

REPORT DATE

May 10, 2022 10:33 PM GMT+8

● **12% Overall Similarity**

The combined total of all matches, including overlapping sources, for each database.

- 7% Internet database
- 6% Publications database
- Crossref database
- Crossref Posted Content database
- 4% Submitted Works database

● **Excluded from Similarity Report**

- Bibliographic material
- Quoted material
- Cited material
- Manually excluded sources

First page

Determinant of The Fine Motor Development to The Stunting Toddlers in Maros Regency, South Sulawesi, Indonesia

Hasriwiani Habo Abbas^a, Arman^b, Siti Patimah^b, Aulia Almukarramah^b

^a Universitas Muslim Indonesia, Makassar, Indonesia

^b Faculty of Public Health, Universitas Muslim Indonesia, Makassar, Indonesia

*Corresponding author.

E-mail addresses: hasriwianihabo.abbas@umi.ac.id

Second page

Funding:

This study has been funded by the ⁶Universitas Muslim Indonesia and Faculty of Public Health Project “The Top Priority Research in Faculty” (Erasmus + program 2019-1-ES01-KA204- 064037).

Acknowledgment:

The authors wish to express their gratitude to the ⁶Universitas Muslim Indonesia and Faculty of ⁷Public Health for their funding support to the dissemination of the study and also publication journal.

Conflict of interest:

The authors declare that they have no conflict of interest.

ABSTRACT

Objective: This aims of this research study are to analyse determinants of the fine motor skill of the stunting toddlers in Maros regency, South Sulawesi, Indonesia.

Method: This study is observational analytic, crossectional design. The sample of the study is the stunting toddlers. The total samples are 100 respondents. The instrument study is using questionnaire of DDST (*Denver Developmental Screening Test*) to measure Fine Motor Skills.

Result: The results showed that the stunting toddlers had normal fine motor skills are 17.3% and 82.7% of stunting toddlers had suspect fine motor disorders skills. There was a relationship between diet ($p=0.036$), history of infectious disease ($p=0.032$), breastfeeding ($p=0.003$), and emotional bonding ($p=0.038$) with the fine motor skills of stunting toddlers. Meanwhile, the immunization ($p=0.94$) and mother's knowledge ($p=0.604$) had no relationship with the fine motor skills of stunting toddlers.

Conclusion: Stunting Toddlers had suspect fine motor disorders as much as 82.7%, and the determinant factors that affect the significant correlation of fine motor development in stunting toddlers are diet, emotional bonding, breastfeeding, and a history of infectious diseases.

Keywords: StuntingToddlers, Fine Motor Skill, Maros Regency

INTRODUCTION

A healthy pregnancy is one of the goals of health development programs in Indonesia. Some physiological changes that occur in pregnant women can cause serious consequences and threats to the health of the pregnancy. Physically, pregnant women will feel tired, weak, and lethargic, meaning that they will need to depend on the people around them. The level of awareness of maintaining good health during pregnancy is one of the most important factors affecting the maternal mortality rate (MMR) during the process of pregnancy and childbirth.^{1,2}

¹⁸ Maternal mortality is an important indicator that needs to be considered in determining the degree of health in the community. This rate ⁵ refers to the death of a woman during pregnancy or within 42 days after delivery from causes directly or indirectly related to childbirth. Maternal mortality rates continue to increase every year. Globally, the number of maternal deaths due to pregnancy complications and labour process is approximately 289,000 per year, which is equal to eight hundred women per day. Global data shows that Indonesia has ¹⁵ the highest maternal mortality rate in Southeast Asia with an estimation of 11,534 deaths per year. One of the risk factors that may cause maternal death is anaemia during pregnancy.³⁻⁵

Anaemia during pregnancy can cause multiple negative implication for mothers' health, including bleeding during labour. Bleeding is the main cause of high maternal mortality (HMM) in Indonesia, indicating that anaemia in pregnancy might be prevalent amongst Indonesian population. ² The prevalence of anaemia in pregnant women is 14% in developed countries and 51% in developing countries. It is estimated that 90,000 deaths are caused by anaemia per year. The incidence of anaemia in Africa, Southeast Asia, and the Western Pacific region is very high, with more than 90% of the population found to be anaemic in surveys conducted with children and mothers, especially pregnant women.⁶

Iron deficiency anaemia is a condition that often occurs in pregnant women. It can cause various dysfunctions including a decrease in endurance, and late growth and development of the fetus. Therefore, this problem requires proper handling and prevention. Giving iron supplements and multi-micronutrient supplements to pregnant women is one of the health measures that can assist with anaemia.

Taking iron supplements such as multi-micronutrient supplements and Fe tablets during pregnancy can reduce the risk of babies being born with low body weight and anaemia. Meeting iron needs during pregnancy can also boost the immune system and prevent anaemia in pregnant women. Multi-micronutrient supplements and Fe tablets during pregnancy help with

the synthesis of erythrocytes, which play a role in preventing fatigue during pregnancy, and can ensure that pregnant women's Hb levels become normal. If pregnant women do not take multi-micronutrient supplements and Fe tablets during pregnancy, they will be prone to anaemia and will quickly tire. A non-governmental organisation (NGO) is introducing a multi-micronutrient supplement for pregnant women, which is replacing Fe tablets with MVA. Understanding the effectiveness of multi-micronutrient supplements and Fe tablets is expected to help prevent anaemia in pregnant women.

3 METHODS

This research is a quantitative study, the research design used is a quasi-experiment with the approach of three groups pre- and post-test design. A total of 120 pregnant women was divided in two groups, group 1 (Fe tablet supplements) and group 2 (multi-micronutrient supplement supplements), and group 3 (a combination of Fe tablets and multi-micronutrient supplements). Study participants was selected using proportional random sampling.

A HemoCue, blood haemoglobin monitoring system designed for quantitative measurement of blood haemoglobin levels, was used to measure haemoglobin value of participants. Trained research team performed taking bloods to measure the women's haemoglobin.

This bivariate analysis is used to look at differences in haemoglobin levels in pregnant before and after the giving of Fe tablets, vitamin angel, and a combination of Fe tablets + multi-micronutrient supplements. The statistical test used is a paired t-test used to test the comparative hypothesis of one unpaired sample. One-way ANOVA test is to determine the effect of multi-micronutrient supplement on Hb levels. All statistical analysis were performed using SPSS version 22.

RESULT

Majority of participant' characteristics were 84.2% aged 20-35 years, 44.2% were graduated elementary school, 80% as a housewife, and 54.2% had normal Hb level (Table 1).

Table 1. Characteristics of Subjects Based on intervention groups

Characteristic	Groups			
	Fe tablets	MMS	Fe tablets + MMS	Total

	n (%)	n (%)	n (%)	n (%)
Age group				
<20 and >35 year (risk)	6 (15.0)	3 (7.5)	10 (25.0)	19 (15.8)
20 - 35 year (not risk)	34 (85.0)	37 (92.5)	30 (75.0)	101 (84.2)
Education level				
Elementary school	23 (57.5)	13 (32.5)	17 (42.5)	53 (44.2)
Secondary school	7 (17.5)	5 (12.5)	12 (30.0)	24 (20.0)
Tertiary school	8 (20.0)	13 (32.5)	9 (22.5)	30 (25.0)
Bachelors' degree	2 (5.0)	9 (22.5)	2 (5.0)	13 (10.8)
Occupation status				
Housewife	39 (97.5)	24 (60.0)	33 (82.5)	96 (80.0)
Government staff	1 (2.5)	16 (40.0)	7 (17.5)	24 (20.0)
Anaemia status				
Not anaemia (Hb 11.0-14.0g/dl)	24 (60.0)	21 (52.5)	20 (50.0)	65 (54.2)
Anaemia (Hb <11.0g/dl)	16 (40.0)	19 (47.5)	20 (50.0)	55 (45.8)

Based on the age group, the Hb level in participants aged under 20 and over 35 had the highest increased in MMS group (1.8). For participants aged 20 to 35, the highest increased in MMS + Fe group (1.1) (table 2).

Table 2, Average haemoglobin levels based on Respondent's Age

Group intervention	Haemoglobin (Mean ± SD)			
	< 20 and >35 year		20 to 35 years	
	before	after	before	After
Fe tablets	10.3±0.40	10.7±0.38	10.8±0.67	11.1±0.53
MMS	10.0±0.47	11.8±0.60	10.8±0.67	11.6±0.49
Fe tablets +MMS	10.7±0.45	11.9±0.51	10.9±0.55	12.0±0.49

The Hb levels in Fe tablet, MMS, and MMS+Fe table groups were significantly increased ($p<0.001$) after the intervention given (0.4, 0.8, 1.1, respectively). The lowest percentage was in the Fe group (3.7%), while the highest was in the MMS+Fe group (10.1%). The result shows that the administration of Fe tablets, multi-micronutrient supplements, and the combination of

Fe tablets and multi-micronutrient supplements for 90 days can increase the Hb levels of pregnant women (table 3).

Table 3. Average Hb levels before and after intervention.

Hb level	Group intervention (Mean $\pm$ SD)		
	Fe tablets	MMS	Fe tablets + MMS
Before	10.7 $\pm$ 0.66	10.8 $\pm$ 0.66	10.9 $\pm$ 0.53
After	11.1 $\pm$ 0.53	11.6 $\pm$ 0.50	12.0 $\pm$ 0.49
P Value	0.000*	0.000*	0.000*
Δ Hb levels	0.4 $\pm$ 0.31	0.8 $\pm$ 0.37	1.1 $\pm$ 0.30
% Δ	3.7 $\uparrow$	7.4 $\uparrow$	10.1 $\uparrow$

* Paired t Test

The one-way ANOVA test shows that there was a significant different of Hb changes among groups after the intervention ($p < 0.001$).

Table 4. Differences in Hb levels between intervention groups.

Variables	Groups			p
	Fe tablets	MMS	Fe tablets + MMS	
Hb Levels Before Intervention				
Minimum				0.388*
Maximum	9.5	9.2	9.7	
	12.4	11.8	11.8	
Hb Levels After Intervention				
Minimum				<0.001*
Maximum	10.0	10.8	11.0	
	12.7	12.7	12.8	
ΔHb levels				
Minimum	-1.0	-1.7	-1.8	<0.001*
Maximum	1.0	-0.3	-0.5	

*One-way ANOVA test

DISCUSSION

The respondents who had the highest level of intervention were pregnant women who were not high risk (aged 20-35 years), had an elementary school education, worked as housewives, and were not anaemic. 20-35 years can be considered to be a productive age for pregnant women. The age factor affects the incidence of anaemia because, at the age of 20 and 35 years, women are more stable in paying attention to the fulfillment of their need for iron^{7,8}. An increase in Hb levels has been found to coincide with increasing age.⁹ It was also found that, as Alam et al. (2021) reported, Hb levels are influenced by age, occupation, and family income.

A factor that indirectly affects the maternal mortality rate is the work of pregnant women. Access to sufficient information helps pregnant women who work in the formal sector to obtain important health information. The environment can also influence a person's ability and willingness to gain experience and knowledge, either directly or indirectly.¹⁰ Employment in pregnant women can increase both income and reproductive health status, due to their ability to obtain new knowledge through discussions and interactions with other people.¹¹

More than half of the pregnant women who participated in this study did not experience anaemia. The remainder of the women demonstrated the need for supplementation of Fe tablets and other supplements in the form of multi-micronutrient supplements. Multi-micronutrient supplements are supplements that were developed for pregnant women. In the Banggai and Probolinggo regions, cooperation with international non-governmental organisations led to important research being conducted.¹² Based on the results of the study, the increase in Hb levels due to taking multi-micronutrient supplements was higher than that due to taking Fe tablets.

Multi Micronutrient Supplements is a charitable organisation that provides nutritional support to millions of people living in at-risk and underserved communities in fifty countries around the world. Multi Micronutrient Supplements, as a charity, provides supplements for pregnant women, facilitates safe births, supports the health of babies, and provides vitamin A and other supplements for children up to the age of five.¹³

The results showed differences in Hb levels before and after the interventions, which included Fe tablets, multi-micronutrient supplements, and a combination of both. The highest increase was found in the combination of multi-micronutrient supplements and Fe tablets.

The mechanism of iron absorption in the body begins with the luminal phase in the stomach. The iron will be processed in the stomach through the stomach acid breaking of its bonds with other compounds. Then there is a reduction from the form of iron (Fe^{3+}) to iron

(Fe²⁺), which can be absorbed in the duodenum. Furthermore, the mucosal phase, or iron absorption in the intestine, occurs in the duodenum and jejunum. Iron from food sources enters in the form of iron (Fe³⁺), or non-heme iron, while the iron is absorbed as iron (Fe²⁺). The absorption of iron is then stored in the cytoplasm.^{14,15}

This study is in line with what was reported by Sari (2021). The average Hb level in pregnant women was higher after consuming Fe tablets (21.68mg/ml ± 10.61) compared to those who had not taken tablets (17.29mg/ml ± 9.90). This showed that there was a significant difference in Hb levels in pregnant women before and after taking Fe tablets (p = 0.014). This led to the government's recommendation and program to provide support for pregnant women to take Fe tablets.

Through government programs, pregnant women are required to consume a total of 90 Fe tablets during pregnancy. The absorption of Fe tablets is influenced by numerous factors, including diseases that affect women during pregnancy and the consumption of Vitamin C, which can help the body to absorb Fe from food. Some foods reduce the ability to absorb Fe such as tea, coffee, calcium-containing foods and other dairy products.¹⁶

CONCLUSION

The average change in Hb levels in the intervention group with Fe tablets was 0.4g/dL, while the intervention for multi-micronutrient supplementation was 0.8g/dL, with differences in the Hb levels of pregnant women with Fe tablet intervention (p-value=0.000) and multi-supplement intervention (p-value = 0.000). This means that the intervention of Fe tablets and multi-micronutrient supplements significantly affected the Hb levels of pregnant women.

REFERENCE

1. I. M. B. Ilmi, F. A. Arini, and D. Novriyanti, "Torbangun Leaf Snack Bar: An Alternative Source for Iron and Calcium For Breastfeeding Mothers in Post-Disaster Refugee Camp." pp. 157-157.
2. I. Siti, S. Siahaan, G. Wanggae, R. Widyasari, A. Kurniawan, N. K. Aryastami, and N. L. Pratiwi, "Dinamika Jender terhadap Akses Pelayanan Kesehatan Maternal Sembilan Etnis di Indonesia," *Buletin Penelitian Sistem Kesehatan*, vol. 22, no. 1, pp. 1-9, 2019.
3. D. F. P. Tarigan, and F. Andriani, "Hubungan Paritas Dengan Kejadian Retensio Plasenta Di Rumah Sakit Umum Daerah H. Abdul Manan Simatupang Kisaran Kabupaten Asahan Tahun 2019," *Jurnal Gentle Birth*, vol. 3, no. 1, pp. 12-18, 2020.

4. C. E. Pamungkas, S. M. WD, and A. Amini, "Refreshing Penyuluhan Tanda-Tanda Bahaya Kehamilan Menggunakan Buku KIA Pada Kelas Ibu Hamil Di Wilayah Kerja Puskesmas Karang Pule," *Jurnal Pengabdian Masyarakat Kebidanan*, vol. 2, no. 1, pp. 23-30, 2020.
5. J. M. Sakung, S. Sirajuddin, A. Zulkifli, S. A. Rahman, and S. Palutturi, "The Effect of Chayote (*Sechium Edule*) on Blood Glucose Level of High School Teachers of Pre-Diabetes," *EXECUTIVE EDITOR*, vol. 9, no. 5, pp. 245, 2018.
6. J. E. Lee, J. Lee, H. Lee, J. K. Park, Y. Park, and W. S. Choi, "End-of-life care needs for noncancer patients who want to die at home in South Korea," *International Journal of Nursing Practice*, pp. e12808, 2020.
7. F. G. Mirza, R. Abdul-Kadir, C. Breymann, I. S. Fraser, and A. Taher, "Impact and management of iron deficiency and iron deficiency anemia in women's health," *Expert review of hematology*, vol. 11, no. 9, pp. 727-736, 2018.
8. ¹¹ I. Dziembowska, J. Kwapisz, P. Izdebski, and E. Żekanowska, "Mild iron deficiency may affect female endurance and behavior," *Physiology & behavior*, vol. 205, no. Juni 2019, pp. 44-50, 2019.
9. ¹² R. A. Accinelli, and J. A. Leon-Abarca, "Age and altitude of residence determine anemia prevalence in Peruvian 6 to 35 months old children," *PloS one*, vol. 15, no. 1, pp. e0226846, 2020.
10. F. Alam, S. Khanum, I. Jahan, and J. U. Ahmed, "Prevalence and sociodemographic factors responsible for anaemia in pregnancy: experience in a military hospital in Bangladesh," ⁹ *BIRDEM Medical Journal*, vol. 11, no. 1, pp. 52-56, 2021.
11. S. Gammage, N. Sultana, and A. Glinski, "Reducing Vulnerable Employment: Is there a Role for Reproductive Health, Social Protection, and Labor Market Policy?," ¹³ *Feminist Economics*, vol. 26, no. 1, pp. 121-153, 2020.
12. K. Hurley, E. L. Achadi, C. Ajello, S. Askari, M. Bajoria, K. Beesabathuni, Q. Harvey, T. U. Khan, S. King, and K. Kraemer, "Prevention of child wasting in Asia: Possible role for multiple micronutrient supplementation in pregnancy," ¹⁹ *Field Exchange* 63, pp. 76, 2020.
13. M. Horino, L. Bahar, A. Al-Jawaldeh, A. Seita, K. Hurley, K. Kraemer, and K. J. West, "Antenatal Multiple Micronutrient Supplementation in the State of Palestine: A Protocol for Implementation and Evaluation," *Current Developments in Nutrition*, vol. 5, no. Supplement_2, pp. 1316-1316, 2021.

14. A. Lopez, P. Cacoub, I. C. Macdougall, and L. Peyrin-Biroulet, "Iron deficiency anaemia," *The Lancet*, vol. 387, no. 10021, pp. 907-916, 2016.
15. K. D. Handayani, and M. N. Widyawati, "The Effect of Combination Alkaline Water and Iron Tablets on Improving Hemoglobin Level among Adolescent," *International Journal of Nursing and Health Services (IJNHS)*, vol. 3, no. 5, pp. 615-621, 2020.
16. A. P. Sari, "The Effectiveness of Iron Tablets Consumption in Pregnant Women to Ferritin Levels in Ilir Timur I Palembang." pp. 5-8.

● 12% Overall Similarity

Top sources found in the following databases:

- 7% Internet database
- 6% Publications database
- Crossref database
- Crossref Posted Content database
- 4% Submitted Works database

TOP SOURCES

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	eprints.ukmc.ac.id	4%
	Internet	
2	Forum Perpustakaan Perguruan Tinggi Indonesia Jawa Timur II on 202...	<1%
	Submitted works	
3	"Abstracts of the Asian Congress of Nutrition 2019", Annals of Nutritio...	<1%
	Crossref	
4	Universitas Muslim Indonesia on 2019-12-04	<1%
	Submitted works	
5	Laureate Higher Education Group on 2012-06-23	<1%
	Submitted works	
6	Sumiaty, Abdullah Tahir, Bahar Burhanuddin, Jafar Nurhaedar, Hadju V...	<1%
	Crossref	
7	link.springer.com	<1%
	Internet	
8	NR Van Den Broek, SA White, C Flowers, JD Cook, EA Letsky, SA Tanu...	<1%
	Crossref	

9	Lydia Boampong Owusu, Charles Apprey, Abigail Kusi-Amponsah Diji, ...	<1%
	Crossref	
10	Ayu Kurniati, Enny Fitriahadi, Fuad Gandhi Torizal. "Literature Review T...	<1%
	Crossref	
11	Christine Y. Wong, Derek H. Chu. "Cutaneous Signs of Nutritional Disor...	<1%
	Crossref	
12	Innocent Uzochukwu Okagu, Rita Ngozi Aguchem, Chinonso Anthony E...	<1%
	Crossref	
13	Swinburne University of Technology on 2021-08-26	<1%
	Submitted works	
14	downloads.hindawi.com	<1%
	Internet	
15	Universitas Sebelas Maret on 2019-08-16	<1%
	Submitted works	
16	gssrr.org	<1%
	Internet	
17	sciencegate.app	<1%
	Internet	
18	Patrícia P. Simões, Renan M.V.R. Almeida. "Geographic accessibility to...	<1%
	Crossref	
19	Institute of Technology, Sligo on 2022-04-25	<1%
	Submitted works	

● Excluded from Similarity Report

- Bibliographic material
- Cited material
- Quoted material
- Manually excluded sources

EXCLUDED SOURCES

Jamaludin Sakung, Dewi Tosae, Gunarmi Gunarmi, Andi Imam Arundhana. "Di... 65%

Crossref

oamjms.eu

65%

Internet