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Determinant Factors Influencing Compliance with Multi-Micronutrient (MMS) Supplement Consumption in Pregnant Women in the Gorontalo City Puskesmas Area

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ABSTRACT

Pregnant women's compliance in consuming vitamin supplements is the behavior of following the instructions or rules given by health workers to prevent and improve the nutritional status of women of childbearing age, especially pregnant women.

The aim of the research was to analyze the relationship between age, education, employment, parity, ANC quantity, husband's support and the role of health workers with compliance with multi-micronutrient supplement consumption among pregnant women in the Gorontalo City Health Center area. This research method uses descriptive statistical analysis research methods. With a cross sectional design, the sample size was 112 pregnant women from 7 health centers in the city of Gorontalo using proportional sampling. Data analysis technique using Binary Logistic Regression. The results of the research show that the age variable has a sig value (P-Value = 0.001 < α (0.05) with compliance with pregnant women, education sig (P-Value = 0.015 < α (0.05) with compliance with pregnant women, employment sig (P -Value = 0.009 < α (0.05) with compliance of pregnant women, parity sig (P-Value = 0.002 < α (0.05) with compliance of pregnant women, ANC quantity sig (P-Value = 0.000 < α (0, 05) with compliance with pregnant women. The conclusion is that there is a relationship between age, education, employment, parity, quantity of ANC, and compliance with multi-micronutrient supplement consumption in pregnant women.

KEYWORDS: Compliance, MMS, Pregnant women

ARTICLE DETAILS

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I. INTRODUCTION

According to WHO (2019), the maternal mortality rate (MMR) in the world is 303,000 people. The Maternal Mortality Rate (MMR) in ASEAN is 235 per 100,000 live births (ASEAN Secretariat, 2020). The maternal mortality rate in Indonesia increases every year, in 2021 there were 166 deaths in Indonesia, an increase compared to 2020 of 98 deaths. Most maternal deaths in 2021 will be due to bleeding (Indonesian Ministry of Health, 2022). In a period of 3 years, the MMR in 2019 saw the number of maternal deaths as many as 40 mothers died with a figure of 180.7/100,000 KH, in 2020 maternal deaths in Gorontalo Province experienced a significant increase, namely 56 mothers died with a figure of 272.5/100,000 KH, while in 2021 the maternal mortality rate decreased by 52 maternal deaths with a figure of 252/100,000 KH from the number of live births of 20,883. Gorontalo Province's Maternal Mortality Rate is very high compared to the national target in the Ministry of Health's Strategic Plan, namely 102/100,000 KLH; this is because the number of Live Births in Gorontalo Province does not reach 100,000 (Gorontalo Health Office, 2021).

One supplement containing vitamins that can increase absorption is Multiple Micronutrients, MMN / MMS is a supplement containing multivitamins, iron and folate which is given to pregnant women as one of the Indonesian Ministry of Health's programs in an effort to prevent anemia during pregnancy. MMS is very important for pregnant women for healthy development, disease prevention and well-being (Prihati et al, 2016). The provision of multiple micronutrients in Indonesia is not evenly distributed, the

distribution of MMS / MMN in Gorontalo Province was implemented in October 2023, this effort was carried out to prevent and improve the nutritional status of women of childbearing age, especially pregnant women, so that dietary needs before and during pregnancy will always be maintained. Fulfilled, so that there is no malnutrition in pregnant women. In the long term, this program is expected to reduce the prevalence of anemia in Gorontalo Province.

The majority of pregnant women (64.3%) are not compliant in consuming MMN tablets and the average consumption of most MMN tablets (66.1%) is still less than 30 tablets (Wijianto, 2022). Based on several studies regarding factors that influence pregnant women's compliance with consuming supplements during pregnancy, namely research in West Iran (Siabani et al., 2018) and research in Mecha District, West Amhara which found that age is a significant factor influencing compliance with iron supplement consumption. Women aged 35-49 years were three times more likely to adhere to iron folate supplementation compared with women of younger age (15-24 years).

METHODS

This research is quantitative research using descriptive statistical analysis research methods. This research uses a cross sectional design. The population is all objects or subjects that have at least one characteristic in common (Irwan, 2022). The population in this study is all pregnant women in the third trimester in 7 health centers in Gorontalo City, totaling 263 pregnant women. The sample in this study was 154 subjects from 7 health centers in Gorontalo City, provided that the sample used sample criteria, namely: Pregnant women III trimester who were given MMS, pregnant women who were at home during the research and pregnant women who were willing to become respondents. The data analysis technique uses the chi square test.

RESULTS AND DISCUSSION

Table 1: Relationship between education and compliance with multi-micronutrient supplement (MMS) consumption among pregnant women in the Gorontalo City Health Center area

Age	Obedience consumption supplement				total		P-Value
	Not obey		Obedient				
	n	%	n	%	n	%	
Risky No risky	12 24	10.7 21.4	7 69	6.3 61.6	19 93	17 83	0.001
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

The results of the Chi-square statistical test obtained a P-value = 0.001, where the P-value < α (0.05) so it can be concluded that there is a significant relationship between age and compliance with consumption of multi micronutrient supplements (MMS) in pregnant women..

Table 2: The Relationship between Education and Compliance with Multi Micronutrient Supplement (MMS) Consumption among Pregnant Women in the Gorontalo City Health Center Area

Education	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	
Elementary Intermediate Tall	15 13 8	13.4 11.6 7.1	13 33 30	11.6 29.5 26.8	28 46 38	25 41.1 33.9	0.015
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

The results of the Chi-square statistical test obtained a P-value = 0.015, where the P-value < α (0.05) so it can be concluded that there is a significant relationship between education and compliance with the consumption of multi micronutrient supplements (MMS) in pregnant women.

Table 3: Relationship between employment and compliance with consumption of multi-micronutrient supplements (MMS) among pregnant women in the Gorontalo city health center area in 2024

Work	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	
Work	19	17	21	18.8	40	35.7	0.009
Doesn't work	17	15.2	55	49.1	72	64.3	
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

The results of the Chi-square statistical test obtained a P-value = 0.009, where the P-value < α (0.05), so it can be concluded that there is a significant relationship between work and compliance with the consumption of multi-micronutrient supplements (MMS) in pregnant women.

Table 4: Connection parity with obedience consumption supplement multi micronutrients (MMS) in pregnant women in the city health center area

Parity	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	
Risky	11	9.8	6	5.4	17	15.2	0.002
No risk	25	22.3	70	62.5	95	84.4	
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

Based on table 4. can seen from total 112 Mother pregnant, Which 17 pregnant women had a history of risk parity, of which 11 pregnant women (9.8%) did not comply with taking supplements and 6 pregnant women (5.4%) complied with taking supplements. supplement, meanwhile 95 pregnant women who were not at risk of parity there is 25 Mother pregnant (22.3%) No obedient consume supplement and 70 pregnant women (62.5%) adhered to taking supplements.

The results of the Chi-square statistical test obtained a P-value = 0.002, where the P-value < α (0.05) so it can be concluded that there is a significant relationship between parity and compliance with the consumption of multi micronutrient supplements (MMS) in pregnant women.

Table 5: Connection quantity ANC with obedience consumption supplement multi micronutrient (MMS) in pregnant women in the Gorontalo city health center area

Quantity ANC	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	
not enough	26	23.2	23	20.5	49	43.8	0,000
Good	10	8.9	53	47.3	63	56.3	
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

Results The Chi-square statistical test obtained a P-value = 0.000, where the P-value < α (0.05) so it can be concluded that there is a significant relationship between ANC quantity and compliance with multi micronutrient (MMS) supplement consumption in pregnant women.

Table 6: Connection support husband with obedience consumption supplements multi micronutrient (MMS) in pregnant women in the Gorontalo city health center area

Support husband	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	

No, get support	11	9.8	2	1.8	13	11.6	0,000
Get support	25	22.3	74	66.1	99	88.4	
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

Results The Chi -square statistical test obtained a P-value = 0.000, where the P-value is < α (0.05) so that can concluded that there is connection which means husband's support with compliance with the consumption of multi micronutrient (MMS) supplements in pregnant women.

Table 7: Relationship between the role of health workers and compliance with consumption of multi-micronutrient supplements (MMS) among pregnant women in the Gorontalo City Health Center area

Role officer health	Obedience consumption supplement				total		P value
	Not obey		Obedient				
	n	%	n	%	n	%	
Not	31	27.7	10	8.9	41	36.6	0,000
good	5	4.5	66	58.9	71	63.4	
Total	36	32.1	76	67.9	112	100	

Source : Primary Data, 2024

Results The Chi-square statistical test obtained a P-value = 0.000, where the P-value < α (0.05) so it can be concluded that there is a significant relationship between the role of health workers and compliance with the consumption of multi micronutrient supplements (MMS) in pregnant women .

Analysis Multivariate

Table 8: Analysis of logistic regression

Variable	B	S.E	P-value	Exp(B)OR	95% CI for EXP(B)	
(constant)	- 11,609	3,026				
Age	3,279	1,211	0.007	26,542	2,472	284,946
Education	1,770	0.807	0.028	5,871	1,207	28,565
Work	4,570	1,568	0.004	96,516	4,462	2087,776
Parity	0.063	1,399	0.964	1,066	0.069	16,521
Quantity ANC	0.967	0.797	0.225	2,630	0.552	12,534
Support husband	2,306	1,410	0.102	10,036	0.633	159,226
Role officer	5,155	1,323	0,000	173,245	12,951	2317,417
health						

Source : Primary Data, Primary Data, 2024

Based on table 8, it is known that the results of multivariate modeling are variables which has significant relationship with P-value < 0.05, namely age (0.007), education (0.028), occupation (0.004) and the role of health workers (0.000), whereas mark OR variable age ie 26,542 which means opportunity 26,542 time obedient in consume MMS supplement, Education variable own mark OR 5,871 Which It means chance 5,871 time to

compliance with MMS supplement consumption, the work variable has an OR value of 96.516 Which It means chance 96,516 time to obedience consumption MMS and the health worker role variable have an OR value of 173.245, which means they have a 173.245 chance of compliance with MMS consumption. So it can be concluded that the variable role of health workers is most related to compliance with the consumption of multi micronutrient supplements (MMS) among pregnant women in the work area of the Gorontalo city health center.

Variables Most Associated with Compliance with Multi Micronutrient Supplement (MMS) Consumption in Pregnant Women in the Gorontalo City Health Center Area

The results of multivariate modeling show which variables own connection Which significant with obedience consumption multi micronutrient supplements (MMS) for pregnant women in the work area of the Gorontalo city health center. From these results, it can be concluded that the variables age, education, occupation, and the role of health workers play an important role in compliance with MMS supplement consumption.

Of all the variables considered, the variable of the role of health workers stands out as a factor the most related with

Compliance with MMS supplement consumption among pregnant women in the work area of the Gorontalo City Community Health Center. Mark p-value role officer health very low, that is 0,000, and a high OR, namely 173.245. This indicates that the role of health workers has a very significant influence on compliance with MMS supplement consumption among pregnant women in this area.

Support, education and direction provided by health workers are very important in increasing the compliance of pregnant women in taking supplements. enhancement role And intervention officer health can be a very effective strategy in increasing compliance with MMS supplement consumption among pregnant women in the region. This underlines the important role of health workers in providing comprehensive education and support to pregnant women to ensure optimal health of the mother and fetus

The age variable shows a significant relationship with a p-value of 0.007 and an odds ratio (OR) value of 26.542. This indicates that age own influence Which strong to compliance with MMS supplement consumption. The older the pregnant woman, the higher the possibility of complying with taking supplements.

This research produces findings that are in line with the studies conducted by Ahmad in 2014. Findings it shows that age significantly influences the level of compliance of pregnant women in consuming Fe tablets. In the analysis carried out, it was proven that there was a relationship Which significant between age And pattern consumption tablet Fe. Through The statistical results obtained, a significance value of 0.029, confirms the existence of a correlation between the age of pregnant women and the frequency of consuming Fe tablets. This figure indicates that pregnant women in the age range considered at risk are more likely to comply with taking Fe tablets compared to pregnant women in the age range considered less at risk.

Variable education also shows a significant relationship with a p-value of 0.028 and OR of 5.871. This indicates that the level of education of pregnant women influences compliance with MMS supplement consumption, where pregnant women with higher education tend to be more compliant in consuming them supplement. Then, variable work Also own significant relationship with a p-value of 0.004 and an OR of 96.516. This shows that the type of work of pregnant women also influences their compliance in consuming supplement MMS. Mother pregnant with work certain individuals may have a higher level of awareness and access to supplements. The most prominent variable is the role of health workers, which shows mark The p-value is very low, namely 0.000, and The OR is high, namely 173.245. This indicates that the role of health workers has a very significant influence on consumption compliance supplement MMS on Mother pregnant in region the. With say On the other hand, support, education and direction provided by health workers are very important in increasing the compliance of pregnant women in taking supplements.

The findings of this research are in line with the views expressed by the Ministry of Health of the Republic of Indonesia (Depkes RI) in a study cited by Ahmad in 2014. The Ministry of Health of the Republic of Indonesia believes that the more a person grows age, the level of maturity also increases. Person who has achieved a sufficient level of maturity is considered preferable trustworthy than person Which Still in level maturity Which low. More Furthermore, when someone reaches a high level of maturity, their thinking patterns also become more mature. In the context of pregnancy, mothers who are of productive age are expected to have a more rational and mature mindset regarding the importance of living inspection pregnancy in a way regular. This matter Because they considered has reach level maturity adequate to understand and appreciate the importance of health care during pregnancy. Thus, the views of the Indonesian Ministry of Health provide a solid basis to the research findings that show that age influences obedience Mother pregnant in consuming Fe tablets. Mother pregnant Which aged more old, And by Because That considered more mature, tend to have understanding better about importance health care during pregnancy, including regular consumption of Fe tablets.

The findings of this study are in line with the results reported by Anggraini in 2018, which showed that there was a significant influence between pregnant women's knowledge and the category of compliance in consuming tablet iron (Fe). Results analysis show that Mother pregnant which has knowledge good have possibility 45.01 time bigger to obey in consuming tablet iron (Fe) compared to with Mother pregnant who have less knowledge. Research data shows that almost all respondents Which own knowledge Good, as much 89.2%, obedient in consuming iron (Fe) tablets, while only a tiny portion, amounting to 12.5%, of respondents with less knowledge were compliant in consuming Fe. Findings This highlighting importance role deep knowledge increasing the compliance of pregnant women with consuming iron (Fe) tablets during pregnancy. With a good understanding of the benefits and importance of iron (Fe) tablets for the health of pregnant women and fetuses, pregnant women are more likely to follow medical recommendations and instructions regarding regular Fe consumption.

By because of that, need done efforts education And more intensive education for pregnant women to increase their knowledge about the importance of consuming MMS iron tablets during pregnancy. In this way, it is hoped that they can improve their level of compliance in consuming MMS, thereby having a positive impact on the health of pregnant women and fetal development.

CONCLUSIONS

The conclusion is that there is a relationship between age, education, employment, parity, quantity of ANC, and compliance with multi-micronutrient supplement consumption in pregnant women.

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