Factors Associated with Mothers' Participation in Choosing Female Sterilization (Tubectomy) as a Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

Faktor-Faktor Yang Berhubungan Dengan Partisipasi Ibu Dalam Memilih Metode Kontrasepsi Metode Operasi Wanita (MOW) Di Kelurahan Pintusona Kecamatan Pangururan Kabupaten Samosir

Astriatalita Lastiar Sinurat [a]*, Kesaktian Manurung [a], Frida Lina Tarigan [a], Rahmat Alyakin Dachi [a], Mido E Sitorus [a]

[a] *Master's Study Program in Public Health Sciences, Postgraduate Program, Sari Mutiara Indonesia University, North Sumatra, Indonesia.*

Corresponding Authors: astriatalitasinurat@gmail.com

Abstract

Background: Rapid population growth remains a serious concern, particularly in Indonesia. Samosir Regency has a Total Fertility Rate (TFR) of 3.2, exceeding the provincial average (2.7). This necessitates stronger population control efforts, such as promoting Long-Term Contraceptive Methods (LTCM), including tubectomy. However, tubectomy acceptance among mothers in Pintusona Village remains low (34.8%), influenced by factors such as knowledge gaps, lack of spousal support, and cultural perceptions. **Objective:** This study aims to analyze the factors associated with mothers' participation in choosing tubectomy as a contraceptive method in Pintusona Village, Pangururan District, Samosir Regency. **Methods:** This study used a cross-sectional design with a quantitative approach. The sample consisted of 70 women of reproductive age who met the inclusion criteria. Data were collected through questionnaires and analyzed using univariate, bivariate (Chi-Square test), and multivariate (logistic regression) methods. **Results:** Bivariate analysis showed significant associations between husband's support (p=0.003), healthcare workers' support (p=0.048), income level (p=0.000), maternal knowledge (p=0.035), and maternal attitude (p=0.024) with the selection of tubectomy. Multivariate logistic regression revealed that husband's support was the strongest predictor (OR = 4.898, p < 0.05), followed by income level. **Conclusion:** Husband's support and family income level are key factors influencing mothers' participation in choosing tubectomy. Family planning programs should involve husbands in education and improve access to information about tubectomy to increase its acceptance.

Keywords: Tubectomy, Contraception, Husband's Support, Maternal Knowledge, Family Income.

Abstrak

Latar Belakang: Pertumbuhan penduduk yang cepat tetap menjadi perhatian serius, khususnya di Indonesia. Kabupaten Samosir memiliki Angka Fertilitas Total (TFR) sebesar 3,2, melebihi rata-rata provinsi (2,7). Hal ini memerlukan upaya pengendalian penduduk yang lebih kuat, seperti promosi Metode Kontrasepsi Jangka Panjang (MKJP), termasuk tubektomi. Namun, penerimaan tubektomi di kalangan ibu di Desa Pintusona masih rendah (34,8%), yang dipengaruhi oleh faktor-faktor seperti kurangnya pengetahuan, dukungan suami yang minim, dan persepsi budaya. **Tujuan:** Penelitian ini bertujuan untuk menganalisis faktor-faktor yang berhubungan dengan partisipasi ibu dalam memilih MOW sebagai metode kontrasepsi di Kelurahan Pintusona, Kecamatan Pangururan, Kabupaten Samosir. **Metode:** Penelitian ini menggunakan desain *cross-sectional* dengan pendekatan kuantitatif. Sampel terdiri dari 70 ibu usia subur yang memenuhi kriteria inklusi. Data dikumpulkan melalui kuesioner dan dianalisis secara univariat, bivariat (uji Chi-Square), dan

multivariat (regresi logistik). **Hasil:** Hasil analisis bivariat menunjukkan hubungan signifikan antara dukungan suami (*p*=0,003), dukungan petugas kesehatan (*p*=0,048), tingkat pendapatan (*p*=0,000), pengetahuan ibu (*p*=0,035), dan sikap ibu (*p*=0,02) dengan pemilihan MOW. Analisis multivariat mengidentifikasi dukungan suami sebagai faktor paling dominan (OR=4,898), diikuti oleh tingkat pendapatan. **Kesimpulan:** Dukungan suami dan tingkat pendapatan keluarga merupakan faktor utama yang memengaruhi partisipasi ibu dalam memilih MOW. Program keluarga berencana perlu melibatkan suami dalam edukasi dan meningkatkan akses informasi tentang MOW untuk meningkatkan akseptansinya.

Kata Kunci: MOW, Kontrasepsi, Dukungan Suami, Pengetahuan Ibu, Pendapatan Keluarga.

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Introduction

The continuous growth of the world's population remains a serious concern, as it affects various aspects such as climate change, food security, energy, access to clean water, and other critical resources. In 2021, the global population reached 7.888 billion, with one in eight people unable to access adequate food. Recent data from the United Nations (UN), in collaboration with the University of Washington, projects that by 2050 the world's population will reach 9.6 billion. Furthermore, by the year 2100, the global population is expected to rise to 11 billion by the end of the century if no effective measures are taken to encourage smaller family sizes [1].

Based on data from the interim population projections for 2020–2023, Indonesia's population in 2023 reached 278.696 million people. This figure shows a steady increase compared to 272.682 million in 2020 and 275.773 million in 2021 [2]. As many as 56.01% of Indonesia's population remains concentrated in Java, followed by 21.67% in Sumatra, 6.14% in Kalimantan, 7.42% in Sulawesi, 5.57% in Bali and Nusa Tenggara, 2.02% in Papua, and 1.17% in Maluku [3]. The population growth rate is recorded at 1.49% [2]. By province, North Sumatra is among those with a relatively high Total Fertility Rate (TFR). The TFR of North Sumatra (2.9) ranks fifth after East Nusa Tenggara (3.4), Maluku (3.3), West Papua (3.3), and Papua (3.2) [4]. To maintain balanced population growth, the average TFR needs to be reduced to the Net Replacement Rate (NRR) of 1. Data from 2020 show that five provinces had a TFR below 2.1, three provinces were around 2.1, and 26 provinces exceeded 2.1, with 11 provinces recording TFR values above 2.4. North Sumatra is among the provinces with a TFR above 2.4, thus requiring various strategies to accelerate TFR reduction in line with the national target of 2.1 [5].

Based on TFR data from several regencies and cities in North Sumatra Province, Samosir Regency recorded a TFR of 3.2, which remains higher than the provincial average of 2.7 [6]. The high population growth rate has significant implications for development, thereby requiring policies to control it. In response, the government has promoted the use of Long-Term Contraceptive Methods (LTCM). However, in practice, methods such as Male Sterilization (MOP), Female Sterilization (MOW), Intrauterine Device (IUD/spiral), and implants remain less preferred by family planning (FP) acceptors. At present, the majority of FP acceptors tend to choose hormonal methods such as injections and pills [7].

The national target for female sterilization (MOW) acceptors in Indonesia is part of broader efforts to improve access to and the quality of family planning (FP) services. In 2023, during the Nationwide FP Service

Week, BKKBN set a target of 1.25 million acceptors across various FP methods, of which approximately 1,906 were designated for female sterilization (MOW) (Keluarga Indonesia, 2023)

A study by Aulia Rizka Chairunnisa (2022) identified various factors influencing the choice of female sterilization (MOW) among women of reproductive age. The findings revealed that the achievement of the family planning program and MOW acceptor targets remained low, reaching only 2.7% in 2019, which is below the national target of 5%. This indicates that further efforts are needed to meet the government's established targets [8].

In 2023, the number of female sterilization (MOW) acceptors in Samosir Regency was recorded at 51. This figure resulted from the family planning services organized by the Samosir Regency Government through the Office of P3AP2KB in commemoration of National Family Day (HARGANAS) [9]. Based on the 2023 annual field control report at the village/urban ward level and the Population and Family Information System of Samosir Regency, the number of female sterilization (MOW) acceptors in Pintusona Village was recorded at 68. Of these, 61 were participants of the National Health Insurance (JKN), consisting of 53 contribution assistance recipients and 8 non-recipients, while 7 were non-JKN participants. This achievement remains below the target of 80 MOW family planning acceptors.

Several factors are associated with the low participation of women of reproductive age (WRA) in utilizing female sterilization (MOW). These factors include women's level of knowledge, husband's support, and parity. A 2021 study at Dewi Sartika General Hospital in Kendari found that knowledge and husband's support played an important role in the decision to choose MOW, whereas employment status had no significant influence [10].

Several factors contribute to the low interest of women of reproductive age (WRA) in becoming MOW acceptors, including limited public education regarding its benefits and procedures, as well as cultural influences that reinforce negative perceptions. Direct factors affecting MOW utilization include lack of knowledge, insufficient communication, information, and education about MOW, the relatively high cost amid low socioeconomic conditions, and inadequate support from men or husbands [11]

Based on a preliminary survey conducted among women of reproductive age (WRA) in Pintusona Village, Pangururan District, Samosir Regency during a posyandu activity, several reasons were identified for the low participation of mothers in utilizing female sterilization (MOW). Many respondents believed that contraception, particularly MOW, contradicts religious teachings that view children as gifts from God and therefore should not be limited. Others expressed fear of undergoing surgery, embarrassment about exposing intimate organs, and concerns about possible side effects of the procedure. Low husband support also played a role, as family planning decisions were often considered solely the wife's responsibility, with husbands showing little interest in discussing contraceptive methods.

Based on the above background, it is necessary to conduct a study on the factors associated with mothers' participation in choosing female sterilization (MOW) as a contraceptive method in Pintusona Village, Pangururan District, Samosir Regency, in 2024.

Experimental Section

Research Design

This study employed a quantitative research method with a cross-sectional design, in which the independent variables (husband's support, health worker support, income level, maternal knowledge, and maternal attitude) and the dependent variable (the choice of female sterilization/MOW as a contraceptive method) in Pintusona Village, Samosir Regency, in 2024 were measured at approximately the same time.

Population and Sample

The population of this study consisted of 223 women of reproductive age who were family planning acceptors in Pintusona Village, Samosir Regency. The sample size was calculated using the formula $n = N/(1+N.d^2)$, where N = population size and d = margin of error (0.05). This yielded 69 respondents, rounded to 70. Inclusion criteria were: married women aged 15–49 years, in a stable relationship, with ≥2 children, no medical contraindications for tubectomy, and willingness to provide informed consent. Exclusion criteria included having medical conditions contraindicating MOW (e.g., uterine or cervical cancer), being pregnant or suspected of pregnancy, currently using non-replaceable contraceptive methods, inability to provide informed consent, or refusal to comply with the study protocol.

Sampling Technique

The sample will be obtained using accidental sampling, in which family planning (FP) acceptors who meet the inclusion criteria and attend the *posyandu* in Pintusona Village, Samosir Regency, in 2024 will be selected as research participants.

Data Collection

This study collected both primary and secondary data. Primary data were obtained directly from respondents using a questionnaire covering husband's support, health worker support, income level, maternal knowledge, and maternal attitudes toward choosing female sterilization (MOW). The questionnaire was adapted from the study of Asri Puspita Sari Lombu on family planning acceptors' knowledge of MOW at Hilisalawa'ahe Health Center, South Nias Regency (2020) [12]. Secondary data were gathered from official institutions, including statistics on women of reproductive age, types of contraceptives used, and other relevant information to support the research discussion.

Validity and Reliability Test

The validity test was used to assess whether the questionnaire accurately measured the intended variables, while the reliability test determined the consistency of results when measurements were repeated. In this study, validity was set at a significance level of 0.05 and reliability was assessed using Cronbach's Alpha > 0.6, indicating that the questionnaire was both valid and reliable. The questionnaire, adapted from the study of Asri Puspita Sari Lombu on family planning acceptors' knowledge of MOW at Hilisalawa'ahe Health Center, South Nias Regency (2020), had already been tested and confirmed as valid and reliable; therefore, additional validity and reliability testing was not conducted [12].

Data Management and Measurement Aspects

Data management in this study was carried out through several stages. The first stage was **editing**, which involved checking the completeness of questionnaire responses. The second stage was **coding**, which assigned numeric codes to the respondents' answers to facilitate processing into a master table. The third stage was **data entry**, where responses or coded answers were transferred into a computerized program. The fourth stage was **tabulating**, which presented the data in table form according to the required analysis. The final stage was **data cleaning**, which rechecked the processed data to identify and correct any errors in each variable before further analysis.

Measurement aspects in this study included several variables. **Husband's support** was measured using 10 questions, with "yes" scored 1 and "no" scored 0, and categorized as good (score 6–10) or poor (score 0–5). **Health workers' support** was also measured using 10 questions with the same scoring system, categorized as good or poor. **Income level** was measured by asking one question about monthly family income, categorized as > UMK or ≤ UMK, based on the minimum wage (UMK) of Samosir Regency of IDR 2,583,697. **Knowledge** was measured using 15 questions, where correct answers scored 1 and incorrect answers scored 0, categorized as good (score 8–15) or poor (score 0–7). **Attitude** was measured using 10 questions on an ordinal scale: "strongly agree (SS)" scored 3, "agree (S)" scored 2, "disagree (TS)" scored 1, and "strongly disagree (STS)" scored 0, with categories of good (score 16–30) or poor (score 0–15). Finally, **the choice of MOW contraceptive method** was measured with two questions: the first asking whether the mother was a KB acceptor, and the second identifying the type of contraceptive used, categorized as using MOW or not using MOW.

Data Analysis

The data were analyzed in three stages: univariate, bivariate, and multivariate. Univariate analysis described the characteristics of each variable, such as education level, age, knowledge, and the choice of MOW contraceptive method. Bivariate analysis examined the relationship between independent variables (husband's support, health worker support, income level, maternal knowledge, and attitudes) and the dependent variable (MOW contraceptive choice) using the Chi-Square test. A p-value < 0.05 was considered statistically significant.

Multivariate analysis was then applied using logistic regression to assess the combined effect of significant independent variables on MOW contraceptive choice. Variables showing significant associations

in bivariate analysis were included in the regression model. The selection of variables for the model was based on the Chi-Square test with a 95% confidence level.

Results and Discussion

Research Location Description

This study was conducted in Pintusona Village, Pangururan District. Administratively, Pangururan District is part of the government area of Samosir Regency, North Sumatra Province. In 2003, the Toba Samosir Regency was divided into two regencies, namely Toba Samosir Regency and Samosir Regency, through Law No. 36/2003. Samosir Regency covers districts located on Samosir Island and part of the mainland of Sumatra Island. Pangururan District is one of the districts in Samosir Regency, which also serves as the administrative center (capital city) of Samosir Regency. Its strategic position on Samosir Island makes this area a central point for government, economic, and tourism activities in the Lake Toba region. Pangururan District lies approximately between 2°54' – 2°55' N latitude and 99°01' – 99°02' E longitude. These coordinates indicate that the district is located in the central part of Samosir Island.

Situated in the middle of Lake Toba, this area has distinctive topography, with highlands and several hills. The elevation around Pangururan ranges between 900 and 1,000 meters above sea level. This condition provides a relatively cool climate compared to the surrounding lowland areas. The presence of Lake Toba surrounding Samosir Island influences the climate and environment of Pangururan District. The area tends to have relatively high rainfall and cool air, making it one of the attractive natural tourist destinations in the Lake Toba region.

The use of male contraceptive methods as part of population control efforts remains an important issue in Pangururan District. This is particularly related to the use of permanent contraceptive methods in men, namely MOW. Based on data from the Population and Family Information System (SIDUGA) of Samosir Regency, the number of MOW participants in Pangururan District only reached 27 percent. This achievement rate is still far below the target of 35 percent.

Various strategies and programs have been implemented by the Department of Women's Empowerment, Child Protection, Population Control, and Family Planning (PPPAPPKB) of Samosir Regency. According to the Secretary of PPPAPPKB, these strategies include education on Family Planning (FP), education on reproductive health, improving access to health services, family empowerment, social and local media campaigns, and partnerships with non-governmental organizations.

Univariate Analysis

Univariate analysis presents the descriptive analysis results of the research variables. The variables in this study consist of independent variables (husband's support, support from health workers, income level, mother's knowledge, and mother's attitude) and the dependent variable (selection of MOW contraceptive method).

Frequency Distribution of Husband's Support

The frequency distribution of husband's support in the selection of MOW contraceptive methods in Pintusona Village, Samosir Regency in 2024 will be presented in Table 1 below.

Table 1. Frequency Distribution of Husband's Support in the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

No	Husband's Support		n	%
1	Good		18	20,7
2	Poor		51	79,3
		Total	**69**	**100,0**

Based on Table 1 above, it can be seen that the frequency distribution of husband's support in the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency is highest in the "poor" category, with 51 respondents (79.3%), and lowest in the "good" category, with 18 respondents (20.7%).

Frequency Distribution of Health Workers' Support

The frequency distribution of health workers' support in the selection of MOW contraceptive method in Pintusona Village, Samosir Regency in 2024 will be presented in Table 2 below

Table 2. Frequency Distribution of Health Workers' Support in the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

No	Health Workers' Support	n	%
1	Good	49	71,0
2	Poork	20	29,0
	Total	**69**	**100,0**

Based on Table 2 above, it can be seen that the frequency distribution of health workers' support in the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency is highest in the "poor" category, with 49 respondents (71.0%), and lowest in the "good" category, with 20 respondents (29.0%).

Frequency Distribution of Family Income Level

The frequency distribution of family income level in the selection of MOW contraceptive method in Pintusona Village, Samosir Regency in 2024 will be presented in Table 3 below.

Table 3. Frequency Distribution of Family Income Level in the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

No	Family Income Level	n	%
1	High	56	81,2
2	Low	13	18,8
	Total	**69**	**100,0**

Based on Table 3 above, it can be seen that the frequency distribution of family income level in the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency is highest in the "high" category, with 56 respondents (81.2%), and lowest in the "low" category, with 13 respondents (18.8%).

Frequency Distribution of Mothers' Knowledge

The frequency distribution of mothers' knowledge level in the selection of MOW contraceptive method in Pintusona Village, Samosir Regency in 2024 will be presented in Table 4 below.

Table 4. Frequency Distribution of Mothers' Knowledge Level in the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

No	Mothers' Knowledge Level	n	%
1	Good	17	24,6
2	Poor	52	75,4
	Total	**69**	**100,0**

Based on Table 4 above, it can be seen that the frequency distribution of mothers' knowledge level in the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency is highest in the "poor" category, with 52 respondents (75.4%), and lowest in the "good" category, with 17 respondents (24.6%).

Frequency Distribution of Mothers' Attitudes

The frequency distribution of mothers' attitudes in the selection of MOW contraceptive method in Pintusona Village, Samosir Regency in 2024 will be presented in Table 5 below.

Based on Table 5 above, it can be seen that the frequency distribution of mothers' attitudes in the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency is

highest in the "poor" category, with 40 respondents (58.0%), and lowest in the "good" category, with 29 respondents (42.0%).

Table 5. Frequency Distribution of Mothers' Attitudes in the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency**.**

No	Mothers' Attitudes	n	%
1	Good	29	42,0
2	Poor	40	58,0
	Total	**69**	**100,0**

Frequency Distribution of MOW Contraceptive Method Selection

The frequency distribution of the selection of MOW contraceptive method in Pintusona Village, Samosir Regency in 2024 will be presented in Table 6 below.

Table 6. Frequency Distribution of MOW Contraceptive Method Selection in Pintusona Village, Pangururan District, Samosir Regency

No	MOW Contraceptive Method Selection	n	%
1	MOW	24	34,8
2	Not MOW	45	65,2
	Total	**69**	**100,0**

Based on Table 6 above, it can be seen that the distribution of MOW contraceptive method selection in Pintusona Village, Pangururan District, Samosir Regency is highest in the "not MOW" category, with 45 respondents (65.2%), and lowest in the "MOW" category, with 24 respondents (34.8%).

Bivariate Analysis

Bivariate analysis presents the statistical results of the relationship between the independent variables (husband's support, health workers' support, family income level, mothers' knowledge, and mothers' attitudes) and the dependent variable (selection of MOW contraceptive method) in Pintusona Village, Pangururan District, Samosir Regency.

The Relationship between Husband's Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

The research findings regarding the relationship between husband's support and the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency are presented in Table 7 below.

Table 7. The Relationship between Husband's Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

Husband's Support	Contraceptive Method				Total		Sig.
	MOW	%	Not MOW	%	n	%	
Good	12	66,7	6	33,7	18	100,0	0,003
Poor	12	23,5	39	76,5	51	100,0	
Total	**24**		**45**		**69**		

Based on Table 7 above, it can be seen that of the 18 wives who received good husband's support, 12 respondents (66.7%) chose the MOW contraceptive method, while 6 respondents (33.3%) did not choose MOW. Among the 51 wives who received poor husband's support, 12 respondents (23.5%) still chose the MOW method, and 39 respondents (76.5%) did not choose MOW. The statistical test using the chi-square test showed a significance value (Sig.) of 0.003. This value is smaller than the error level (α = 0.05), so it can be concluded that there is a significant relationship between husband's support and the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency.

The Relationship between Health Workers' Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

The research findings regarding the relationship between health workers' support and the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency are presented in Table 8 below.

Table 8. The Relationship between Health Workers' Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

Health Workers' Support	Contraceptive Method				Total		Sig.
	MOW	%	Not MOW	%	n	%	
Good	13	26,5	36	73,5	49	100,0	0,048
Poor	11	55,0	9	45,0	20	100,0	
Total	24		45		69		

Based on Table 8 above, it can be seen that of the 49 wives who received good support from health workers, 13 (26.5%) chose the MOW contraceptive method, while 36 (73.5%) did not choose MOW. Of the 20 wives who received poor support from health workers but still chose MOW, 11 (55.0%) chose MOW, and 9 (45.0%) did not. The statistical test using the chi-square test showed a significance value (sig.) of 0.048. This value is less than the error rate (α = 0.05), so it can be concluded that there is a relationship between health worker support and the choice of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency.

Relationship Between Income Level and the Choice of MOW Contraceptive Method Pintusona Village, Pangururan District, Samosir Regency

The results of the study on the relationship between family income level and the choice of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency are presented in Table 9 below.

Table 9. Relationship Between Income Level and the Choice of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency.

Income level	Contraceptive Method				Total		Sig.
	MOW	%	Not MOW	%	n	%	
High	13	23,2	43	76,8	56	100,0	0,000
Low	11	84,6	2	15,4	13	100,0	
Total	24		45		69		

Based on Table 9, it can be seen that among 56 wives with high income levels, 13 (23.2%) chose the MOW contraceptive method, while 43 (76.8%) did not. Among 13 wives with low income levels who chose the MOW method, 11 (84.6%) and 2 (15.4%) did not choose the MOW contraceptive method. The statistical test using the chi-square test showed a significance value (sig.) of 0.000. This value is less than the error rate (α = 0.05), so it can be concluded that there is a relationship between income level and the selection of the MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency.

The Relationship between Knowledge Level and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

The results of the study on the relationship between family knowledge level and the selection of the MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency are presented in Table 10 below.

Based on Table 10, it can be seen that among 17 wives with good knowledge levels, 10 (58.8%) chose the MOW contraceptive method, while 7 (41.2%) did not. Among 52 wives with less adequate knowledge who chose the MOW method, 14 (26.9%) and 38 (73.1%) did not choose the MOW contraceptive method. The statistical test using the chi-square test showed a significance value (sig.) of 0.035. This value is less than the error rate (α = 0.05), so it can be concluded that there is a relationship between knowledge level and the selection of the MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency.

Table 10. Relationship between Knowledge Level and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency**.**

Knowledge Level	Contraceptive Method				Total		Sig.
	MOW	%	Not MOW	%	n	%	
Good	10	58,8	7	41,2	17	100,0	0,035
Poor	14	26,9	38	73,1	52	100,0	
Total	24		45		69		

The Relationship between Wives' Attitude and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

The results of the study on the relationship between wives' attitudes and the selection of the MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency are presented in Table 11 below.

Table 11. Relationship between Wives' Attitude and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

Wife's attitude	Contraceptive Method				Total		Sig.
	MOW	%	Not MOW	%	n	%	
Good	15	51,7	14	48,3	29	100,0	0,024
Poor	9	22,5	31	77,5	40	100,0	
Total	24		45		69		

Based on Table 11 above, it can be seen that out of 29 wives with a positive attitude, 15 (51.7%) chose the MOW contraceptive method, while 14 (48.3%) did not choose MOW. Among the 40 wives with a less favorable attitude, 9 (22.5%) chose MOW, and 31 (77.5%) did not choose the MOW contraceptive method. The statistical test using the chi-square test showed a significance value (sig.) of 0.024. This value is less than the error level ($\alpha = 0.05$), indicating that there is a relationship between wives' attitudes and the choice of the MOW contraceptive method in Kelurahan Pintusona, Kecamatan Pangururan, Kabupaten Samosir.

Multivariate Analysis
Bivariate Selection

After conducting the bivariate analysis, a multivariate analysis was performed to identify the most dominant independent variables associated with the dependent variable. The initial stage of the multivariate analysis is the selection of potential independent variables (multivariate candidate variables) to be included in the analysis, which are variables from the bivariate analysis with a p-value < 0.25 (Lemeshow, 1990). The multivariate analysis used in this study is a simple logistic regression test. Details can be seen in Table 12.

Table 12. Candidate Variables for Multivariate Analysis (Binary Logistic Regression)

No	Variabel	p- *value* (<0,25)	Description
1.	Husband's support	**0,003**	Candidate
2.	Health worker support	**0,048**	Candidate
3.	Income level	**0,000**	Candidate
4.	Wife's knowledge level	**0,035**	Candidate
5	Wife's attitude	**0,024**	Candidate

Based on Table 12 above, the analysis of the relationship between the independent variables and the dependent variable shows that all independent variables have a p-value < 0.25. These variables include husband's support, health worker support, income level, wife's knowledge level, and wife's attitude. Therefore, all independent variables meet the criteria to be included in the final modeling using binary logistic regression.

Final Modeling

The second stage of multivariate analysis involves conducting a complete modeling by including all candidate variables for analysis. The purpose of multivariate analysis is to obtain the best model in determining which factors influence the choice of the MOW contraceptive method in Pintusona Village, Pangururan Subdistrict, Samosir Regency. In this stage, all candidate variables are tested together to form the final model equation. Details can be seen in Table 13.

Table 13. Final Model of Multivariate Analysis Using Multiple Logistic Regression on the Variables: Husband's Support, Health Worker Support, Income Level, Wife's Knowledge Level, and Wife's Attitude.

	Variabel	**B**	*Sig*	*Exp*	95% C.I for EXP (B)	
					Lower	*Upper*
Final Stage	Income Level	-2.667	0.002	0.069	0.013	0.378
	Husband's Support	1.589	0.018	4.898	1.316	18.227

Based on Table 13, the final results of the modeling using binary logistic regression indicate that two variables—husband's support and income level—showed significant values (p < 0.005). Therefore, based on the analysis using binary logistic regression, the most dominant variable is husband's support, with a significance value of 0.018 and an Exp(B) value of 4.898. It can be concluded that wives who receive good support from their husbands have a 4.898 times greater chance of choosing the MOW contraceptive method compared to wives who receive less supportive husbands in Pintusona Village, Pangururan Subdistrict, Samosir Regency.

Discussion

The Relationship between Husband's Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

The statistical test results show that there is a significant relationship between husband's support and the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency. The significance value (Sig.) was 0.003, which is smaller than the error level (α = 0.05), indicating a significant relationship between husband's support and the choice of MOW.

Female Operation (MOW) or tubectomy is an effective permanent contraceptive method for birth control. However, the selection of this method is often influenced by various factors, one of which is husband's support. As the head of the family, the husband plays an important role in making decisions related to his wife's reproductive health, including contraceptive choices. Husband's support may take several forms: a) **Emotional support**, such as encouraging and reassuring the wife to undergo MOW; b) **Informational support**, by providing understanding about the benefits and risks of MOW; c) **Practical support**, such as accompanying the wife during consultations or medical procedures; d) **Financial support**, covering the costs of the tubectomy procedure.

Several studies have shown that husband's support significantly increases the likelihood of a wife choosing MOW as a contraceptive method. Conversely, lack of husband's support often becomes a barrier to this choice. Retnowati (2018) found a significant relationship between husband's support and contraceptive selection, especially among women over 35 years old with multiparity [13]. Husband's support enhances wives' confidence in choosing MOW. Similarly, Sudirman & Herdiana (2020) reported that women who received positive support from their husbands were more likely to choose permanent contraception, with a p-value of 0.004 indicating a significant relationship [14].

Nastiti et al. (2020), in a literature review, found that husbands often act as key decision-makers in contraceptive selection, alongside wife's education and knowledge [15,16]. Tindaon & Haryono (2020) highlighted that most husbands in their study did not support tubectomy due to cultural and religious beliefs, resulting in low usage rates. Rahman et al. (2023) noted that husband's support helps wives feel more confident and psychologically secure in undergoing MOW [17].

Sari & Kurniawati (2022) emphasized that husbands play a primary role in motivating their wives to select an appropriate contraceptive method, directly or indirectly [18]. Retnowati (2018) also stressed that husband's support affects the psychological condition of wives when choosing contraception. Greater support corresponds to higher confidence in selecting MOW [13].

Husband's support is influenced by several factors, including educational level, cultural and religious beliefs, couple communication, and family or community experiences. Higher-educated husbands are more likely to support MOW due to a better understanding of its benefits. Cultural and religious norms may discourage sterilization in some communities. Open communication between couples facilitates agreement on contraceptive methods. Husbands with family members or acquaintances who have undergone MOW are more likely to provide support.

In conclusion, husband's support is closely related to wives' selection of MOW, encompassing financial, logistical, psychological, and emotional aspects. Full support from husbands enhances wives' confidence in choosing MOW. Therefore, family planning programs should involve husbands in education and socialization regarding the benefits and implications of permanent contraceptive methods.

The Relationship between Health Workers' Support and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

Statistical tests also indicate a significant relationship between health workers' support and the selection of MOW contraceptive method in Pintusona Village, Pangururan District, Samosir Regency. The significance value (Sig.) was 0.048, which is smaller than the error level ($\alpha = 0.05$), confirming the relationship.

Support from health workers plays a crucial role in contraceptive decision-making, including MOW. Health workers who provide comprehensive information, appropriate counseling, and motivation can help wives make informed decisions. This support includes education on various contraceptive methods, explaining the advantages and disadvantages of each, and involving the husband in the decision-making process.

Studies support this finding. Kadir & Sembiring (2020) found that information provided by health workers significantly influenced the wife's choice of IUD contraception [19]. Yuliana & Sari (2022) showed that health worker support affected mothers' behavior in selecting long-term contraceptives [20]. Rizali (2013) and Sitorus & Maimunah (2020) found that health worker support had a significant influence on contraceptive choices, highlighting the importance of counseling and information dissemination [21–23]. Novita & Sari (2021) reported that informed husbands were more likely to provide support, enhancing wives' willingness to use contraception [24]. Setiawati & Lestari (2021) found that access to information and support from both health workers and husbands significantly influenced the choice of MOW.

The Ministry of Health of Indonesia (2019) emphasizes the importance of health workers in providing high-quality contraceptive services. Training aims to improve competence in counseling and information delivery, thus influencing the selection of permanent methods like MOW [25–27].

The Relationship between Family Income and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

Statistical analysis shows a significant relationship between family income and MOW selection, with Sig. = 0.000 (< 0.05). Higher-income families tend to have better access to health facilities and can afford procedures, making them more likely to choose permanent contraception. Income may indirectly affect access to education and information about contraceptive methods. Studies by Suparman & Hidayat (2020) and Wulansari & Hartanto (2012) support the influence of income on contraceptive choice, although other factors such as education, knowledge, and husband's support also play significant roles [28,29].

The Relationship between Wife's Knowledge and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

Statistical results indicate a significant relationship between wife's knowledge and MOW selection (Sig. = 0.035 < 0.05). Knowledge about contraception enables wives to make informed decisions. Wives with higher knowledge understand the benefits and risks of MOW and are more likely to choose it. Lower knowledge is often associated with myths and misconceptions that hinder selection. Studies by Rotie, Tombokan, & Adam (2015), Sari, Yuliani, & Ramadhani (2018), and Bakri, Hidayah, & Lubis (2022) confirm the significance of knowledge in choosing effective or permanent contraceptive methods.

The Relationship between Wife's Attitude and the Selection of MOW Contraceptive Method in Pintusona Village, Pangururan District, Samosir Regency

The statistical test shows a significant relationship between wife's attitude and MOW selection (Sig. = 0.024 < 0.05). Wife's attitude reflects acceptance or rejection of MOW based on understanding, beliefs, and

personal or social experiences. Positive attitudes increase the likelihood of choosing MOW, reinforced by education, counseling, and supportive experiences. Negative attitudes often stem from myths, misinformation, cultural or social pressures, and low self-confidence. Studies by Sari, Yuliani, & Ramadhani (2018), Rahmawati & Setyawati (2017), Putri & Nugroho (2020), and others confirm the strong influence of attitude on MOW selection [30–33].

Educational interventions from health workers and family planning programs are crucial in shaping positive attitudes toward MOW. With sufficient information and support from husbands and health workers, wives are more confident in selecting the most appropriate contraceptive method for their needs.

Conclusion

Based on the statistical analysis, this study found significant associations between husband's support, healthcare workers' support, income level, wife's knowledge, and wife's attitude with the choice of MOW (Male Operation for Women) contraceptive method in Pintusona Village, Pangururan District, Samosir Regency. Husband's support was the strongest predictor (adjusted OR = 4.898), followed by income level. This indicates that wives who receive strong support from their husbands are 4.898 times more likely to choose the MOW contraceptive method compared to those who receive less support.

Conflict of Interest

The author affirms that this study was carried out independently, without external influence or conflicts of interest that could compromise the objectivity and integrity of the findings.

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Supplementary Materials

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