



Relationship between Education Level and Mother's Knowledge about Choosing Contraceptive Devices

Ulfie Aulia Rachma¹, Ninuk Dwi Ariningtyas², Yelvi Levani³, Muhammad Anas⁴, Salsabillah Kemangi Urrachman⁵

^{1,2,3,4} Faculty of Medicine, Universitas Muhammadiyah Surabaya, Surabaya, East Java, Indonesia

⁵ Islamic Azad University of Medical Science, Tehran, Iran

Article Info	Abstract
<p>Article history: Received 22 March 2025 Revised 23 March 2025 Accepted 23 March 2025 Available online 05 April 2025</p> <p>Keywords: Knowledge; Education; Contraception; Health Center.</p> <p>Correspondence: ulfieaulia82@gmail.com</p> <p>How to cite this article: Rachma UA, Ariningtyas ND, Levani Y, Anas M, Urrachman SK. Relationship between Education Level and Mother's Knowledge about Choosing Contraceptive Devices. MAGNA MEDIKA Berk Ilm Kedokt dan Kesehat. 2025; 12(1):50-56</p>	<p>Background: Population growth is influenced by high birth rates and low mortality rates. Improved health services reduce mortality rates while births continue to increase. According to the Data and Information Center of the Indonesian Ministry of Health (2020), contraceptive services include education, counseling, medical screening, provision and removal of contraceptives, and handling of side effects to prevent pregnancy.</p> <p>Objective: To determine the relationship between the level of education and mothers' knowledge of contraception at Bandar Kedungmulyo Community Health Center, Jombang.</p> <p>Method: This is an analytical observational study aimed at analyzing the relationship between the level of education and the level of a mother's knowledge of the choice of contraception. The study sample consisted of 304 women of childbearing age who accepted family planning. Data were collected using a questionnaire.</p> <p>Results: The majority had good knowledge (97.7%). Injectable contraception was the most widely chosen (60.5%). The Chi-square test and multinomial logistic regression showed that the level of education and knowledge of mothers influenced the choice of contraception.</p> <p>Conclusion: There is a relationship or simultaneous influence between the level of education and the level of knowledge of mothers on the choice of contraceptives.</p>

2025 MAGNA MEDIKA: Berkala Ilmiah Kedokteran dan Kesehatan with CC BY NC SA license

INTRODUCTION

Population growth rate is influenced by high birth rate and low death rate. With improved health service quality, the death rate decreases while the birth rate continues to increase. Indonesia is the fourth most populous country in the world, reaching 248.8 million people.¹ Compared to other ASEAN countries, Indonesia has a fertility rate (Total Fertility Rate/TFR) of 2.6, which is still above the average TFR of other ASEAN countries.²

According to the BKKBN, in 2014, there were around 8,500,247 fertile couples (PUS) who became new family planning participants, with almost half (48.56%) using injectable contraception.³ In 2020, active family planning participants among PUS reached 67.6%, with the majority of acceptors (72.9%) choosing the injection method and 19.4% choosing the pill method. Injectable and pill contraception are short-term contraceptive methods that have lower effectiveness in controlling pregnancy compared to other contraceptive methods.⁴

The Family Planning (FP) program aims to improve community welfare by controlling birth rates and supporting reproductive health.⁵ FP also helps couples plan pregnancy to delay or realize it as desired.⁶ Contraceptive services include education, counseling, medical screening, provision of contraceptives, installation or removal, and handling of side effects or complications. In Indonesia, contraceptive methods are divided into hormonal and non-hormonal.⁷

The choice of contraception is influenced by various factors such as education level, knowledge level, occupation, attitude, age, number of previous children, husband's support, and economic conditions.⁸ Previous studies showed that

the majority of respondents were aged ≤ 35 years (67.6%) and had secondary education (59%). This study found a relationship between age and education in the choice of injectable contraceptive methods.⁹ Based on these findings, further research was conducted to explore the relationship between education level and maternal knowledge level with the choice of contraceptive methods at the Bandar Kedungmulyo Health Center, Jombang.

METHODS

Study Design

Study analytical observational method with a cross-sectional design to analyze the relationship between risk factors and effects, especially in the selection of contraceptive methods.

Subjects and Sample Size

The study population was women of childbearing age (WCA) who accepted family planning, with a sample of 304 people selected using total sampling based on the Slovin formula.

Research Variabel

The variables in this study include dependent variables (choice of contraceptive method) and independent variables (level of knowledge and education of the mother). Data collection was carried out through a validated questionnaire.

Statistical Analysis

Data analysis using the Chi-Square test was done to see the relationship between variables and logistic regression and determine certain factors' influence on contraceptive selection. Data processing is done through SPSS, including editing, coding, entry, cleaning, and tabulation processes.^{10,11}

RESULTS

This study was conducted at the Bandar Kedungmulyo Health Center, Jombang, in January - February 2023, with a sample of 304 women of childbearing age (17-40 years) willing to be respondents. Data was collected through questionnaires distributed by 11 midwives in various villages using the random purposive sampling method.

Based on the data in Table 1, it can be seen that of the 304 respondents studied, 14 people, or 4.6%, had elementary education, 252 people, or 82.9%, had secondary education, and 38 people, or 12.5%, had higher education. Based on the results of Table 1, it can be seen that of the 304 respondents studied, seven people, or 2.3%, had a low level of knowledge, and 297 people, or 97.7%, had a good level of expertise.

Based on the data results in Table 1, it can be seen that of the 304 respondents studied, 184 people, or 60.5%, chose injectable contraception, 24 people, or 7.9%, chose IUD contracep-

tion, 33 people, or 10.9%, chose pill contraception, 18 people or 5.9% chose condom contraception, 38 people or 12.5% chose implant contraception. Seven people, or 2.3%, choose MOW contraception.

Based on the cross-tabulation results in Table 2, it can be seen that respondents with basic education levels mostly choose contraceptives in the form of pills, respondents with secondary education levels mostly choose contraceptives in the form of injections, and respondents with higher education levels mostly choose contraceptives in the form of injections. The results of the chi-square test in Table 4 show that the significance value or p-value is $0.002 < 0.05$, so it can be concluded that there is a relationship between the mother's education level and the choice of contraceptives.

Based on the cross-tabulation results in Table 3, it can be seen that respondents with poor knowledge mostly choose contraceptive pills, while respondents with good knowledge mostly choose contraceptive injections.

Table 1. Distribution of women of childbearing age based on education, knowledge, contraceptive methods

	Variable	N	%
Education	Basic	14	4,6
	Secondary	252	82,9
	High	38	12,5
Knowledge	Poor	7	2,3
	Good	297	97,7
Contraceptives methods	Injection	184	60,5
	IUD	24	7,9
	Pill	33	10,9
	Condom	18	5,9
	Implant	38	12,5
	Mow	7	2,3
	Total	304	100

Table 2. Cross-tabulation between maternal education level and choice of contraceptives

Education	Contraceptives							Asymp. Sig. (2-sided)	
	Injection	IUD	Pill	Condom	Implant	Mow	Total		
Basic	N	4	2	5	0	2	1	14	0,002
	%	1,3%	0,7%	1,6%	0,0%	0,7%	0,3%	4,6%	
Secondary	N	161	14	26	15	30	6	252	
	%	53,0%	4,6%	8,6%	4,9%	9,9%	2,0%	82,9%	
High	N	19	7	2	3	6	0	38	
	%	6,2%	2,6%	0,7%	1,0%	2,0%	0,0%	12,5%	
Total	N	184	23	33	18	38	7	304	
	%	60,5%	7,9%	10,9%	5,9%	12,5%	2,3%	100,0%	

Table 3. Cross tabulation between maternal knowledge level and contraceptive choice

Knowledge	Contraceptive							Asymp. Sig. (2-sided)	
	Injection	IUD	Pill	Condom	Implant	Mow	Total		
Poor	N	2	0	4	0	1	0	7	0,011
	%	0,7%	0,0%	1,3%	0,0%	0,3%	0,0%	2,3%	
Good	N	182	24	29	18	37	7	297	
	%	59,9%	7,9%	9,5%	5,9%	12,2%	2,3%	97,7%	
Total	N	184	24	33	18	38	7	304	
	%	60,5%	7,9%	10,9%	5,9%	12,5%	2,3%	100,0%	

Table 4. Model Fitting Information of education and knowledge on contraceptive selection

Model	Model Fitting Criteria		Likelihood Ratio Tests		
	-2 Log Likelihood		Chi-Square	df	Sig.
Intercept Only	86.135				
Final	50.507		35.628	18	0.008

To find out whether there is a relationship between the mother's level of expertise and the choice of contraceptives, a chi-square test is carried out as follows: Based on the results of the chi-square test, it can be seen that the significance value or p-value is $0.011 < 0.05$, so it can be concluded that there is a relationship between the mother's level of knowledge and the choice of contraceptives.

This multinomial logistic regression test is used to determine the relationship or influence simultaneously between the level of education and the level of a mother's knowledge of the choice of contraceptives. Based on Table 4, it can be seen that the significance value or p-value is 0.008

< 0.05 , so it can be concluded that there is a relationship or influence simultaneously between the level of education and the level of mother's knowledge on the choice of contraceptives.

DISCUSSION

This study includes an analytical observational method study that aims to determine whether there is a relationship between the level of education and the level of maternal knowledge regarding the choice of contraception at the Bandar Kedungmulyo Health Center, Jombang. This study requires a sample of fertile female FP acceptors at the Bandar Kedungmulyo Jombang Health Center, with as many as 304 respondents. This study uses a cross-sectional research design

conducted by collecting data directly at the Bandar Kedungmulyo Jombang Health Center. The study's results show that of the most fertile women who are FP acceptors at the Bandar Kedungmulyo Health Center, Jombang, 82.9% have secondary education.

The study results showed that most respondents (82.9%) had secondary education (junior high school/high school), according to the research of Tohir and Sari, which found that most mothers had secondary education.¹² As many as 4.6% of respondents had basic education, which could affect the absorption of information about family planning.¹³ Higher education makes it easier to understand information, while low education hinders the acceptance of new information.^{14,15}

Regarding knowledge level, 97.7% of respondents had good knowledge about family planning, while 2.3% had poor knowledge. This result is in line with the research of Musyayadah et al. and Mandasari and Juniarty, who found that the majority of women of childbearing age already had good knowledge about contraception. Factors that caused respondents to have poor knowledge still include limited information about contraceptives, side effects, and contraindications, as well as lack of participation in family planning counseling. Only mothers who are active in PKK cadre activities receive information more often, while socialization with other mothers is still less effective.^{15,16}

Regarding the choice of contraception, the results of the study showed that 60.5% of respondents chose injectable contraception. This finding is supported by research by Musyayadah et al., who noted that 70.8% of respondents in their study chose the injectable method.¹⁵ The main factors in choosing this method are ease of

use, high effectiveness, and does not affect breast milk production.¹⁷

The chi-square test showed a significant relationship between education level and contraceptive choice with a p-value of 0.002 (<0.05). Respondents with primary education tended to choose pills, while those with secondary and higher education preferred injections. These results support the research of Tohir and Sari, which found a relationship between education level and contraceptive choice.¹² The study by Mandasari and Juniarty also showed that mothers with higher education tended to choose implant contraception (p-value 0.006).¹⁶ In addition, the study by Fahlevie et al. found a relationship between education level and the use of long-term contraceptive methods (p-value= 0.033).¹⁸

In addition, the chi-square test also showed a significant relationship between the level of knowledge and the choice of contraception with a p-value of 0.011 (<0.05). Respondents with less knowledge chose pills more, while those with good knowledge chose injections more. This result is in line with the research of Mandasari and Juniarty, which found that mothers with high knowledge were more likely to select implants (p-value 0.000).^{16,19} Research by Hasi-buan and Pane also found that the level of knowledge affects the choice of hormonal and non-hormonal contraceptive methods.^{17,20,21} Research by Azis and Muliwana found a relationship between knowledge and condom selection (p-value= 0.0003). At the same time, Satria et al. showed a relationship between the level of knowledge and IUD selection (p-value 0.015).^{21,22,23}

The multinomial logistic regression analysis results showed that education and knowledge simultaneously influenced the choice of contraception with a p-value of 0.008 (<0.05). Thus, the higher the level of education and knowledge of mothers, the greater their tendency to choose more effective and appropriate contraceptive methods^{24,25,26}.

CONCLUSION

Most women of childbearing age who accepted family planning at the Bandar Kedungmulyo Jombang Health Center had secondary education and good knowledge about family planning. Injectable contraception was the leading choice. There was a significant relationship between the level of education and knowledge of mothers with the choice of contraceptives.

REFERRENS

1. Devi S, Fatchiya A, Susanto D. Kapasitas Kader dalam Penyuluhan Keluarga Berencana di Kota Palembang, Provinsi Sumatera Selatan. *J Penyuluhan*. 2016;12(2): 144. <https://doi.org/10.25015/penyuluhan.v12i2.11223>
2. Nasution A, Rangkuti N. Hubungan karakteristik ibu dengan pemakaian kontrasepsi IUD di Desa Tolang Jae. 2018;1(2):30–42. Available from: <https://doi.org/10.16143/j.cnki.1001-9928.2018.01.002>
3. Kemenkes. (2014). *Infodatin-Kb (2)*.Pdf.
4. Dinas Kesehatan Provinsi Jawa Timur. *Profil Kesehatan Provinsi Jawa Timur 2019*. Surabaya: Dinas Kesehatan Provinsi Jawa Timur; 2020. Available from: www.dinkesjatengprov.go.id
5. Wulansari F, Maryati H, Suharyati. *The mother's perception about using contraceptive IUD in Manunggal Village Ngusikan Jombang*. 2014.
6. Matahari R, Utami FP, Sugiharti S. *Buku Ajar Keluarga Berencana dan Kontrasepsi*. Yogyakarta: Pustaka Ilmu; 2018. Available from: <http://eprints.uad.ac.id/24374/1/buku%20ajar%20Keluarga%20Berencana%20dan%20Kontrasepsi.pdf>
7. Hayati S, Maidartati, Komar SN. Hubungan pengetahuan ibu tentang metode kontrasepsi dengan pemilihan kontrasepsi. *Jurnal Keperawatan BSI*. 2017;5(2):155–63.
8. Hidayah N, Lubis N. Hubungan pengetahuan dan dukungan suami terhadap pemilihan kontrasepsi tubektomi. *J Endurance*. 2019; 4(2): 421. <https://doi.org/10.22216/jen.v4i2.2989>
9. Sab'ngatun, Hanifah, L., & Sulistyorini, E. (2021). Hubungan antara usia dan pendidikan dengan pemilihan kontrasepsi suntik. 12(1), 134–144.
10. Heryana A. Analisis data penelitian kuantitatif berbasis classical. *Metodologi Penelitian Kuantitatif*. 2017 Jun;1–12. <https://doi.org/10.13140/RG.2.2.31268.91529>
11. Heryana A. Jumlah kelompok Fungsi Syarat data. *Universitas Esa Unggul*. 2020 May;1–20. <https://doi.org/10.13140/RG.2.2.23266.15047>
12. Tohir T, Tohri, Sari HJ. Hubungan tingkat pendidikan dan pengetahuan ibu terhadap pemakaian alat kontrasepsi di wilayah keluarga binaan kesehatan Fakultas Kedokteran Universitas Muhammadiyah Sumatera Utara angkatan 2016 di Kecamatan Medan Johor Sumatera Utara tahun 2019. *J Ilm Simantek*. 2021;5(3):16–21.
13. Pradani N, Ulandari Y. Hubungan tingkat pendidikan ibu dengan pemilihan alat

- kontrasepsi KB suntik di Puskesmas Gunung Samarinda Kota Balikpapan tahun 2017. *Midwifery J Kebidanan*. 2018;3(2):90–94.
14. Rahayu, Wijayanti T. Hubungan tingkat pengetahuan ibu terhadap penggunaan kontrasepsi IUD dalam tinjauan literature review tahun 2021. *Borneo Student Res*. 2022;3(2):1675–1687.
 15. Musyayadah Z, Hidayati IR, Atmadani RN. Hubungan pengetahuan dan sikap wanita usia subur terhadap pemakaian alat kontrasepsi hormonal suntik di Puskesmas Kecamatan Lowokwaru, Malang. *Muhammadiyah J Midwifery*. 2021;2(2): 58–68.
<https://doi.org/10.24853/myjm.2.2.58-68>
 16. Mandasari P, Juniarty E. Hubungan antara pengetahuan dan tingkat pendidikan ibu tentang pemakaian alat kontrasepsi KB implant. *J Health Sci*. 2021;1(1):1–5.
 17. Mahmudah N, Daryanti MS. Karakteristik akseptor KB dan pemilihan metode alat kontrasepsi pada wanita usia subur di masa pandemi. *J IMJ: Indones Midwifery J*. 2021;5(1):16–22.
 18. Fahlevie R, Anggraini H, Turiyani T. Hubungan umur, paritas, dan tingkat pendidikan terhadap penggunaan metode kontrasepsi jangka panjang (MKJP) di Rumkitban Muara Enim Tahun 2020. *J Ilm Univ Batanghari Jambi*. 2022;22(2): 706.
<https://doi.org/10.33087/jiubj.v22i2.1672>
 19. Hasibuan S, Pane AH. Hubungan antara tingkat pengetahuan ibu dengan pemilihan kontrasepsi di Puskesmas Sipiongot. *Ibnu Sina: J Kedokteran dan Kesehatan - Fak Kedokteran Univ Islam Sumatera Utara*. 2022;21(2):138–144.
 20. Ardiani, Khoiriyah, et al. "Comparison of weight gain in injectable contraceptive 1-month and 3-month acceptors at the independent midwife practice Tambaksari Surabaya." *MAGNA MEDIKA: Berkala Ilmiah Kedokteran dan Kesehatan* 7.2 (2020): 63-69.
 21. Anas, Muhammad, and Samsulhadi Samsulhadi. "Angka Kejadian Kehamilan Pada Penderita Infertil Dengan Endometriosis Minimal Ringan Yang Mendapatkan Terapi Medroksi Progesteron Asetat Oral Di RSUD Dr Sutomo Surabaya Indonesia." *Majalah Obstetri Ginekologi* 14.1 (2006): 29-39.
 22. Azis R, Mulyana. Faktor-faktor yang berhubungan dengan pemakaian kontrasepsi kondom pada pasangan usia subur di wilayah kerja Puskesmas Campalagian. *J Ilm*. 2021;5(1):23–30.
 23. Satria D, Chairuna C, Handayani S. Hubungan tingkat pengetahuan, dukungan suami, dan sikap ibu dengan penggunaan kontrasepsi IUD. *J Ilm Univ Batanghari Jambi*. 2022;22(1):166.
[doi:10.33087/jiubj.v22i1.1772](https://doi.org/10.33087/jiubj.v22i1.1772).
 24. Rosenzweig, Mark R., and Daniel A. Seiver. "Education and contraceptive choice: A conditional demand framework." *International Economic Review* (1982): 171-198.
 25. D'Souza, Preethy, et al. "Factors influencing contraception choice and use globally: a synthesis of systematic reviews." *The European Journal of Contraception & Reproductive Health Care* 27.5 (2022): 364-372.
 26. Nketiah-Amponsah, Edward, Samuel Ampaw, and Priscilla Twumasi Baffour. "Socioeconomic determinants of use and choice of modern contraceptive methods in Ghana." *Tropical Medicine and Health* 50.1 (2022): 33.