

## THE CORRELATION BETWEEN HUSBAND SUPPORT AND THE USE OF INTRA-UTERINE DEVICE (IUD) IN WOMEN OF CHILDBEARING AGE: A META-ANALYSIS STUDY

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### ABSTRACT

The rapid increase of population growth yearly is a problem that Indonesia generally faces. Various efforts to resolve this problem have been done by the government, one of which is the Family Planning Program and strategies for the use of contraception. Intra-Uterine Device (IUD) is one contraception type that remains unpopular, with only 6.6% of users in 2018. One of the factors assumed to affect the contraceptive use is spouse support. The aim of this study was to analyze and then summarize the findings on the correlation between husband support and the use of IUD in women of childbearing age. Ten studies with certain criterias that had been selected from various databases were used in the meta-analysis. The data were analyzed with the Comprehensive Meta-Analysis 2 trial version. Based on the analysis, husband support was a factor correlated with the use of IUDs in women of childbearing age ( $p = 0.000$ ).

**Keywords:** spouses' support, Intra-Uterine Device, meta-analysis

### ABSTRAK

Salah satu permasalahan yang kerap kali dijumpai di Indonesia adalah pesatnya peningkatan laju pertumbuhan penduduk tiap tahunnya. Pemerintah gencar menggalakkan berbagai upaya guna menekan permasalahan tersebut, salah satunya yaitu penyelenggaraan program Keluarga Berencana (KB) berserta strategi penggunaan alat kontrasepsi. Alat Kontrasepsi Dalam Rahim (AKDR) menjadi satu dari banyak jenis kontrasepsi yang masih belum banyak digunakan, dengan hanya sebesar 6,6% pengguna pada 2018. Terdapat banyak faktor yang memiliki hubungan dengan pemakaian alat kontrasepsi dalam rahim pada Wanita Usia Subur (WUS), di antaranya adalah dukungan suami. Tujuan dari studi ini adalah mengaplikasikan metode meta analisis untuk menggabungkan dan menarik kesimpulan dari berbagai hasil penelitian mengenai hubungan antara dukungan suami dengan penggunaan AKDR pada WUS. Penelitian ini melibatkan sebanyak 10 artikel penelitian dari berbagai database yang telah diseleksi dengan kriteria tertentu. Data dianalisis dengan software Comprehensive Meta-Analysis 2 versi trial. Berdasarkan hasil analisis data, dukungan suami merupakan faktor yang berhubungan dengan penggunaan AKDR pada wanita usia subur ( $p = 0,000$ ).

**Kata kunci:** dukungan suami, alat kontrasepsi dalam rahim, meta analisis

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### INTRODUCTION

As a developing country, Indonesia continuously faces the problem of a growing population. Central Bureau of Statistics, reported that until 2019, the number of inhabitants in Indonesia averaged 268 million. Indonesia's yearly population growth rate was 1.3%. The United Nations Department of Economic and Social Affairs (2019) predicted Indonesia as one of nine countries to have a significant population increase by 2050.

The Indonesian government has implemented several programs to solve this population issue, one of which is Family Planning (KB). The program was designed by the government to balance the needs and number of inhabitants (Retnowati, Novianti and Wulandary, 2018). There are several strategies in this program, but the most promoted one is birth spacing management using contraception.

The data from Central Bureau of statistics (2020) stated that in 2019, the percentage of married women who used family

planning was by 55.96%. Compared to previous years, the number decreased from 58.73% in 2018, 58.70% in 2017, and 59.39% in 2016.

Contraceptives, based on its effective lifespan, are grouped into two, namely Long-Acting Reversible Contraceptives (LARC) and non-LARC (Nurlisis and Anggraini, 2016). Several types of LARC include implants, Intra-Uterine Device (IUD), vasectomy, and tubectomy. Meanwhile, non-LARC include injections, pills, condoms, etc.

The Indonesian Ministry of Health (2018) obtained data from the Basic Health Research Report which stated women in the age range of 10-54 years were more likely to use non-LARC. The most frequent ones were 3 months injections (42.4%), pills (8.5%), 1 month injections (6.1%), and condoms (1.1%). Contrastingly, the mostly used LARC were IUD (6.6%), tubectomy (3.1%), and vasectomy (0.1%).

When compared to the non-LARC method, IUD has a very low user base. Data from The Indonesian Ministry of Health (2018) reported that the province with the most IUD users was Yogyakarta (17.6%), while the least was Papua (1%).

IUD is a type of contraceptive made from elastic plastic, which is then inserted into the uterus (Putri and Oktaria, 2016). The IUD works by inhibiting the flow of sperms towards the fallopian tube, thus affecting fertility, and preventing ovum implantation in the uterus.

Various studies show IUDs are beneficial and effective in managing birth spacing since it functions directly after the implantation, can be utilized until menopause, and deals with no drugs (Hasanah, Wahyuningsih and Purnamaningrum, 2014). An IUD is considered a safe contraceptive. It is effective in preventing pregnancy by 97%-99% and is also suitable for long-term use (Marikar, Kundre and Bataha, 2015).

Many studies have discussed various factors of the use of IUD in women of childbearing age. One factor is spouse support that has been found to be correlated with the use of IUD in women of childbearing age. However, some studies have shown opposite results. Consequently, it is difficult to get an exact conclusion from various results.

The yearly development of research methods tends to be rapid. In the health field, new research methods have been applied in

many fields of studies. One method which has not yet fully been utilized is meta-analysis.

According to Gogtay and Thatte (2017), meta-analysis is defined as a statistical method to integrate various results of many individual studies. Since the 1970s, meta-analysis has progressed as a statistical analytic technique that summarizes many similar studies to yield certain information (Prasiska, 2014). Meta-analysis is the part of the quantitative systematic review method.

Meta-analysis allows the researcher to integrate various similar studies quantitatively, thus making this method more objective and data-oriented (Retnawati et al., 2018). Furthermore, meta-analysis is capable of illustrating the correlation between observed similar studies.

Meta-analysis uses effect or statistic size to combine results from various studies. Effect size clarifies the scale of correlation between variables in a study. In meta-analysis, effect size can be used varyingly through odds ratio, risk ratio, mean, and others.

The objective of this study was to apply the meta-analysis method to combine and draw a conclusion from several research results on the correlation between spouse support and the use of IUD in women of childbearing age.

## METHOD

The current meta-analysis research reviewed several combined studies correlating husband support with the use of IUD in women of childbearing age until a conclusion was found. Meta-analysis is considered an objective method in combining several studies since it uses statistical criteria.

The data sources were in the form of research articles. Data collection was done by searching related research articles. The databases used in this study were Google Scholar and Garba Rujukan Digital (GARUDA). The keywords searched were "AKDR", "IUD", "Alat Kontrasepsi Dalam Rahim", "Intra-Uterine Device", and "Dukungan Suami".

Results from the search would then be selected using certain criteria, which were those talking about correlation or influence, using IUD as the dependent variable and spouse support as one of the independent variables, applying a quantitative design, producing odds ratio value and confidence interval. Also, other

criteria were those conducted in Indonesia and published between 2010-2020.

The data processing and analysis used the Comprehensive Meta-Analysis 2 trial version. Before determining the merge model for data analysis, tests on effect size measurement, quality, and cross-studies heterogeneity were carried out.

Effect size was measured based on the odds ratio values of each research. Additionally, a heterogeneity test was used to see if variants between the cross-studies were homogenous or heterogenous. The heterogeneity test result was then used to decide the correct merge method. The two merge methods used were Random Effect Model (REM) and Fixed Effect Model (FEM). If the heterogeneity test showed heterogenous results, the REM merge method was chosen. On the other hand, if the results were homogenous, FEM would be chosen. After the proper merge method was obtained, the final results of meta-analysis (summary effect) were determined and then presented in a forest plot diagram.

## RESULTS

The collected research articles were chosen based on the criteria. Ten articles that best matched were analyzed using meta-

analysis. The chosen research characteristics are presented in Table 1. The research by (Aldriana, 2013) had the most samples as many as 220 people, while research by Salsabilla, et al (2018) had the least amount as many as 61 people. Five studies were analyzed using a case control design, and the other five were analyzed using a cross-sectional design. In Table 2, the odds ratio value for each research which matched the criteria was synthesized to obtain effect size, variants, and quality.

Based on the variant's measurements, the study with the biggest variant at 1.120 belonged to Nurlisis and Anggraini (2016). This showed that the data were more varied than others. Based on the quality measure, Aldriana (2013)'s research showed the highest quality at 1.074, while Nurlisis and Anggraini (2016) found the lowest quality at 0.501.

The heterogeneity test results in Table 3 showed the cross-studies variation was heterogenous ( $Q(48.106) \geq df; p(0.000) < \alpha(0.05)$ ). Therefore, the merge model applied in the meta-analysis study was REM.

Table 4 shows the values of summary effect calculated with the random effect merge model. The summary effect value obtained from merging ten articles was at 5.958 with a confidence interval of 3.005-11.813 ( $p = 0.000$ ).

**Table 1.** Characteristics of Selected Research Articles

Author	Years of Publication	Location	n	OR	95%CI
Aldriana	2013	Rokan Hulu	220	9.250	5.709-14.987
Sulastri	2014	Jakarta Pusat	210	2.422	1.229-4.774
Nurlilis and Anggraeni	2016	Siak	100	126	15.83-100 2.4
Indrayani	2017	Pekanbaru	100	0.084	0.011-0.674
Astriaana and Br. Rgg	2017	Pesawaran	127	4.037	1.917-8.499
Etnis et al	2018	Nganjuk	104	2.837	1.270-6.339
Sulistiowati et al.	2018	Boyolali	200	12.5	6.41-24.47
Salsabilla et al.	2018	Bogor	61	4.52	1.614-15.194
Tampubolon and Tarigan	2018	Medan	65	8.408	1.820-38.847
Sihombing and Sitorus	2019	Simalungun	189	6.9	2.395-20.12

**Table 2.** Measurement of Effect Size, Quality, and Variants

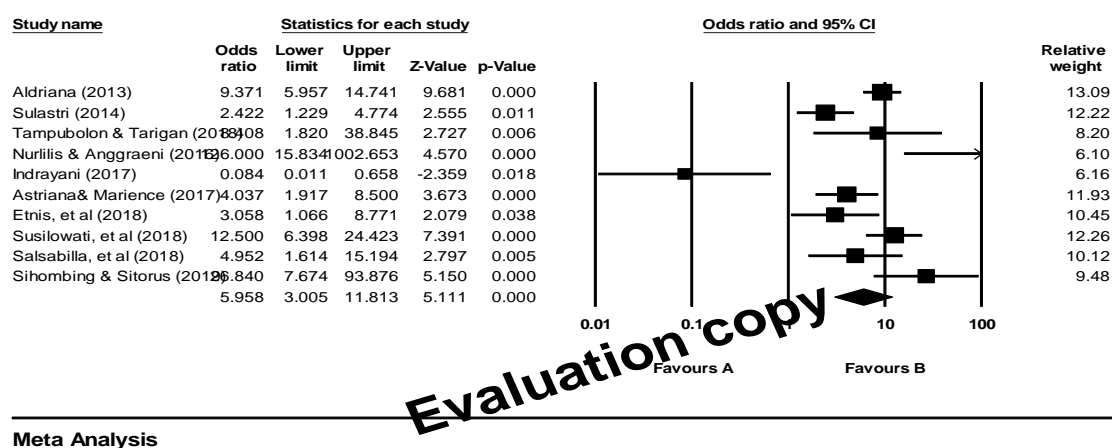
Author	Effect Size	Variants	Quality
Aldriana (2013)	2.238	0.053	1.074
Sulastri (2014)	0.885	0.120	1.002
Nurlisis and Anggraini (2016)	4.836	1.120	0.501
Indrayani (2017)	-2.447	1.102	0.505
Astriana and Br. Rgg (2017)	1.396	0.144	0.978
Etniset al. (2018)	1.118	0.289	0.857
Susilowati et al. (2018)	2.526	0.117	1.005
Salsabilla et al. (2018)	1.600	0.327	0.830
Tampubolon and Tarigan (2018)	2.129	0.610	0.627
Sihombing and Sitorus (2019)	3.290	0.408	0.777

**Table 3.** Heterogeneity Test Results

Heterogeneity			Tau-square				
Q	df	p	I <sup>2</sup>	T <sup>2</sup>	SE	Variants	Tau
48.106	9	0.000	81.291	0.878	0.621	0.386	0.937

**Table 4.** Summary Effect

Model	Number of Research	Summary Effect	Lower Limit	Upper Limit	Z	P
Random Effect	10	5.958	3.005	11.813	5.111	0.000

**Figure 1.** Results for IUD Forest Plot

According to Table 4, there was a correlation between spouse support and the use of IUD in women of childbearing age ( $p(0.000) < \alpha$ ). The result of meta-analysis also produced an OR-value of 4.111. In other words, women of childbearing age who did not receive husband support were 4.111 times more at risk of not using IUD. This meta-analysis study is illustrated in a forest plot diagram (see Figure 1).

## DISCUSSION

The meta-analysis in this study used odds ratio size as effect size. That effect size was then synthesized to generate the variants and quality size values from the ten articles investigated.

Meta-analysis has two types of merge models, FEM and REM. The selection of the two models was determined by the heterogeneity test results of the studies that

would be merged. If the result was homogenous, then the applied model would be FEM. If the result was heterogenous, the REM model would be used.

Results of heterogeneity test can be seen in Table 2. It showed that between studies, the variation was heterogenous. Therefore, REM was the appropriate merge model for this meta-analysis study. The studies analyzed through REM resulted in a different and varied true effect. True effect is the effect size value in the population (Gogtay and Thatte, 2017). The final conclusion of meta-analysis using REM is presented in Table 2.

The forest plot diagram presented in the form of graphics and symbols in Figure 1 was the results of the meta-analysis. It contains the conclusion of meta-analysis from the studies. The forest plot diagram contains information on the research quality, research effect size, and generated summary effect of the meta-analysis.

There are several symbols in the forest plot (Tawfik et al., 2019). The square represents the effect size of each research. The bigger the square produced, the better the research quality. Quality is the role of the results of a study on the summary effect obtained. The diamond represents the summary or merge effect size of all of the studies used. The left and right ends of the diamonds each represent the confidence interval of the summary effect. The size of the diamond represents the accuracy of the conclusions drawn. The wider the diamond wish, the greater the deviation value of the meta-analysis results is (Prasiska, 2014).

The final merge deduction is described in Figure 1. This meta-analysis study indicated a relationship between husband support and the use of IUD in women of childbearing age ( $p = 0.000 < \alpha$ ). The results of these conclusions are in accordance with a study conducted by Rukmawati, et al (2019). This study argued that there was a significant correlation between the husband support and the use of IUD in women of childbearing age. It also explained that the spouse was a determining and strengthening factor in choosing a contraceptive type. The spouse support can be actualized into information, concrete actions, and being present if needed.

In accordance with this, Mariati (2018) argued that the process of choosing IUD could not be separated from spouse support because generally a husband is the main decision

makers in the family. Spouse support would influence women's interest in using IUD.

Purnandias, et al (2018) argued that there was a relationship between husband support and participation of IUD users. The study argued that the better the husband support was, the more likely the IUD would be accepted. It goes with the fact that health care decisions could be made by those closest to the women.

Harahap, et al (2019) stated that husband support was one social factor affecting the use of contraceptives. It positively impacted the use of IUD by the wives who became more confident and thus no longer hesitated to use IUD.

Through the similar studies above, it could be concluded that spouse support is important and necessary for women to decide the use of IUD. Husbands are considered responsible for taking the main family decisions, including the choice and use of contraceptives.

It is important to increase the coverage of IUD use in women of childbearing age because it has more benefits than other contraceptive methods, especially the non-LARCs. IUD is highly effective in preventing about 0.6-0.8 pregnancies per 100 IUD acceptors depending on the type used (Putri and Oktaria, 2016). Besides, IUD can be used for a long time in about a starting period of 3-5 years based on the type used. The IUD that lasts the longest is the Cu T 380A type that can last 8 years without the need for a replacement (Majid, 2013). An IUD is also effective in inhibiting the flow of sperm to the egg and damaging the sperm by changing the mucous membrane of the uterus, thereby ensuring no fertilization (Yulendrasari, 2016).

Pitriani (2015) further explained the advantages of IUDs compared to other contraceptive methods, one of which was reducing bleeding during menstruation. However, if one decides to get pregnant, the fertility will recover immediately after removing the IUD. Research by Whaley and Burke (2015) stated that 82% of women could be pregnant again within six months after discontinuing the IUD. Herlambang, Fitri and Kusdiyah, (2019) also stated that IUD has various benefits such as preventing ectopic pregnancies when it is implanted after an abortion, having no hormonal side effects affecting breastmilk production and quality, and lasting until menopause.

Meta-analysis as a quantitative method of systematic review has both advantages and disadvantages. The main drawback of using meta-analysis method is publication bias. In terms of publication bias, studies with negative or insignificant results were less likely to be published (Ahn and Kang, 2018). Further to support this argument, Mansyur and Iskandar (2017) also mentioned that there were several shortcomings in using the meta-analysis method. For instance, meta-analysis which aggregates something will result in different arguments being treated the same and methodological errors.

Prasiska (2014) stated that the research quality needs to be considered since it will affect the quality of the conclusion in the meta-analysis. In her research, Prasiska stated that researchers who used the meta-analysis method must determine certain criteria for the research. Agreeingly, (Ahn and Kang, 2018) stated that if the studies merged in the meta-analysis are not evaluated properly, it may cause bias and produce inaccurate conclusions.

In the meantime, as a rarely applied research method, meta-analysis has several advantages. Meta-analysis is a less subjective method. Therefore, since meta-analysis is a quantitative method, it can take more samples, thus generating more representative results. Meta-analysis also answers questions of various research results because it is intended to combine various similar studies with different results.

## CONCLUSION AND SUGGESTION

### Conclusion

Meta-analysis was administered towards the ten selected articles with certain criteria. The analysis done used effect size in the forms of odds ratio (OR) and merge random effect method. The meta-analysis results showed that there was a correlation between husband support and the use of IUD in women of childbearing age ( $p = 0.000$ ). Women of childbearing age without spouse support were 4.111 more likely not to use IUD compared to those with spouse support (OR = 4.111).

### Suggestion

The use of the meta-analysis method was still minimum. The future researchers can utilize this objective and accurate research

method more in the health field. The effect size that could be used is not only a measure of the odds ratio but also the risk ratio, mean, Fisher's Z, Pearson Chi-square, or other measures. Future researchers also need to pay attention to and evaluate the quality of the research results to avoid publication bias. Research evaluation could be carried out by applying certain selection criteria according to proper justifications.

In relation to the increased use of IUD in women of childbearing age, it is necessary to increase husbands' participation in encouraging their wives to use IUDs. This can be done by involving them in various outreach activities regarding contraceptives, organized by health facilities such as health centers. Moreover, improving knowledge of couples of childbearing ages on the benefits, effectiveness, and influence of using IUD is north worthy to attract women's interest. Apart from that, related health workers also need to carry out various activities or programs to encourage women of childbearing age to use IUD.

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