

# Meta-Analysis: The Influence of Knowledge, Education, and Husband's Support on The Selection of Long Acting Contraception Methods

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## ABSTRACT

The population is expected to increase by 8,5 billion persons in 2030 and 10,9 billion persons in 2100, population is growing at a rate of around 1,1% per year. One of population growth control by birth control with contraception. The most effective contraception is long-acting contraception, however, on IDHS (Indonesian Health Demographic Survey) only 13% of currently married women use long-acting contraception. Many factors affect contraceptive use among married women, such as knowledge, education, and husband's support. The purpose of this study was to determine the effect of knowledge, education, and husband's support on the selection of MKJP. This study used meta-analysis with the search engines by Google scholar, PUBMED, science direct, and ProQuest. The study was selected using PRISMA and it was evaluated by AMSTAR. Data synthesis was conducted by STATA 16.0. The results of this study obtained by knowledge [OR = 0,99; 95% CI : 0,90-1,08, p = 0,000; I<sup>2</sup> = 74,8%], education [OR = 0,84; 95% CI : 0,77-0,92, p = 0,000; I<sup>2</sup> = 86,3%], and husband's [OR = 0,94; 95% CI : 0,69-1,20, p = 0,000; I<sup>2</sup> = 81,5%]. This means that knowledge, education, and husband's support have an impact on the use of long-acting contraception.

**Keywords:** Knowledge, education, husband's support, long-acting contraception

## INTRODUCTION

Based on the 2019 World Population Prospects, the United Nations estimates that the world's population will reach 8,5 billion people by 2030, 9,7 billion people in 2050, and 10,9 billion people in 2100. The Human population is influenced by the rate of population growth where the rate of population growth in the world in 2015-2020 was 1,1% per year.<sup>1</sup> With a growth rate that is still quite high like this, if it is not controlled wisely and effectively it will cause a population explosion which can cause problems in various sectors.

The Indonesian government made population control efforts for the first time in 1969 through a contraceptive program that aims to be able to plan the number of families, delay the birth of children, get proper education, and be able to allocate time to be more productive.<sup>2</sup> The contraceptive method that is most effective at preventing unwanted pregnancies is the Long-Acting contraceptive method.<sup>3</sup> One of the strategic targets to be achieved nationally through the 2015-2019 BKKBN RENSTRA is to increase active participants using the Long-Acting Contraception Method (MKJP) with a 2020 target of 25.11%. However, the national achievement in 2019 is still 24.60%. Meanwhile, for South Kalimantan, the achievement of MKJP usage was still very low, namely 8.02%.

The achievement of the use of MKJP still does not meet the target set if it is related to the Theory of Behavior, so choosing a long-acting contraceptive method in a person is an example of health behavior that occurs in society. According to Lawrence Green's theory, factors that influence health behavior, both individuals and communities, include knowledge, education, and husband's support.<sup>4</sup>

The results of research by Setiasih, Widjarnako, and Istiarti (2016) state that knowledge influences the choice of MKJP, but the husband's support has no effect.<sup>5</sup> Meanwhile, the results of research by Chacko et. al (2016) stated that education has an effect on the use of MKJP, but the husband's support has no effect.<sup>6</sup> In the research of Demeke et. al (2020) stated that the husband's education and support influenced the use of MKJP with a sample of 460 respondents.<sup>7</sup> Meanwhile, research conducted by Bhandari et.al (2019) states that knowledge and education do not effect on the use of MKJP among modern women. This research was conducted on a sample of 9,875 respondents.<sup>8</sup>

Based on some of these studies which have been reviewed, there are differences in the results of the research which lead to a research gap (gap). For this reason, a meta-

analysis study was conducted to obtain strong conclusions to be used as a benchmark in making policies so that they could support the achievement of the Contraception Program.

## METHOD

This study used a quantitative study design in the form of a meta-analysis that was conducted by searching on Google Scholar, PUBMED, Science Direct, and ProQuest. The research protocol uses Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA) to identify the number of literature and trace studies that meet the meta-analysis criteria. The PRISMA stages go through 4 (four) stages, including identification, screening, eligibility, and included.<sup>9</sup> The identification stage was carried out by searching for data using search keywords related to knowledge, education, and support of husbands for the choice of long-acting contraceptive methods with the type of study in the form of cross-sectional. Furthermore, screening was carried out to sort journals systematically and presented in tabular form based on exclusion criteria. Then, the assessment of the feasibility of the quality of the journal is carried out by using AMSTAR (Assessment of Multiple Systematic Reviews) which is based on the criteria of high quality (score 9-11), medium quality (score 5-8), and low quality (score 0-4).<sup>10</sup>

Finally, sorting journals based on inclusion criteria, including journals related to research topics, the publication year 2015-2020, Indonesian and English, in the form of full text, having data for synthesis (p-value, OR, LCI, and UCI), and indexed by Sinta S1-S4 (national journal) and indexed by Scopus through Scimago (Q1-Q4) for international journals. Data synthesis was performed using STATA 16.0.

## RESULT AND DISCUSSION

Based on the search keywords, an overall study of the initial identification results of 4 (four) search engines was obtained as many as 4,018 journals. Furthermore, screening is carried out by deleting duplicate journals, journals that do not focus on the topic, journals with qualitative methods, journals in languages other than Indonesian and English, and journals that are only abstract and cannot be accessed. The screening results from 4,018 journals were obtained as many as 77 journals, then assessed the feasibility of the journals with AMSTAR so that as many as 20 journals were selected with high quality (score 9-11).

Of the 20 studies that fulfilled the synthesis, 11 journals discussed the influence

of knowledge, 16 journals that discussed the effect of education, and 10 journals that discussed the influence of husband's support. The journal has a reputation recognized by

Scopus internationally through SCIMAGO in Q1-Q3 and nationally accredited through Sinta is on Sinta-1.

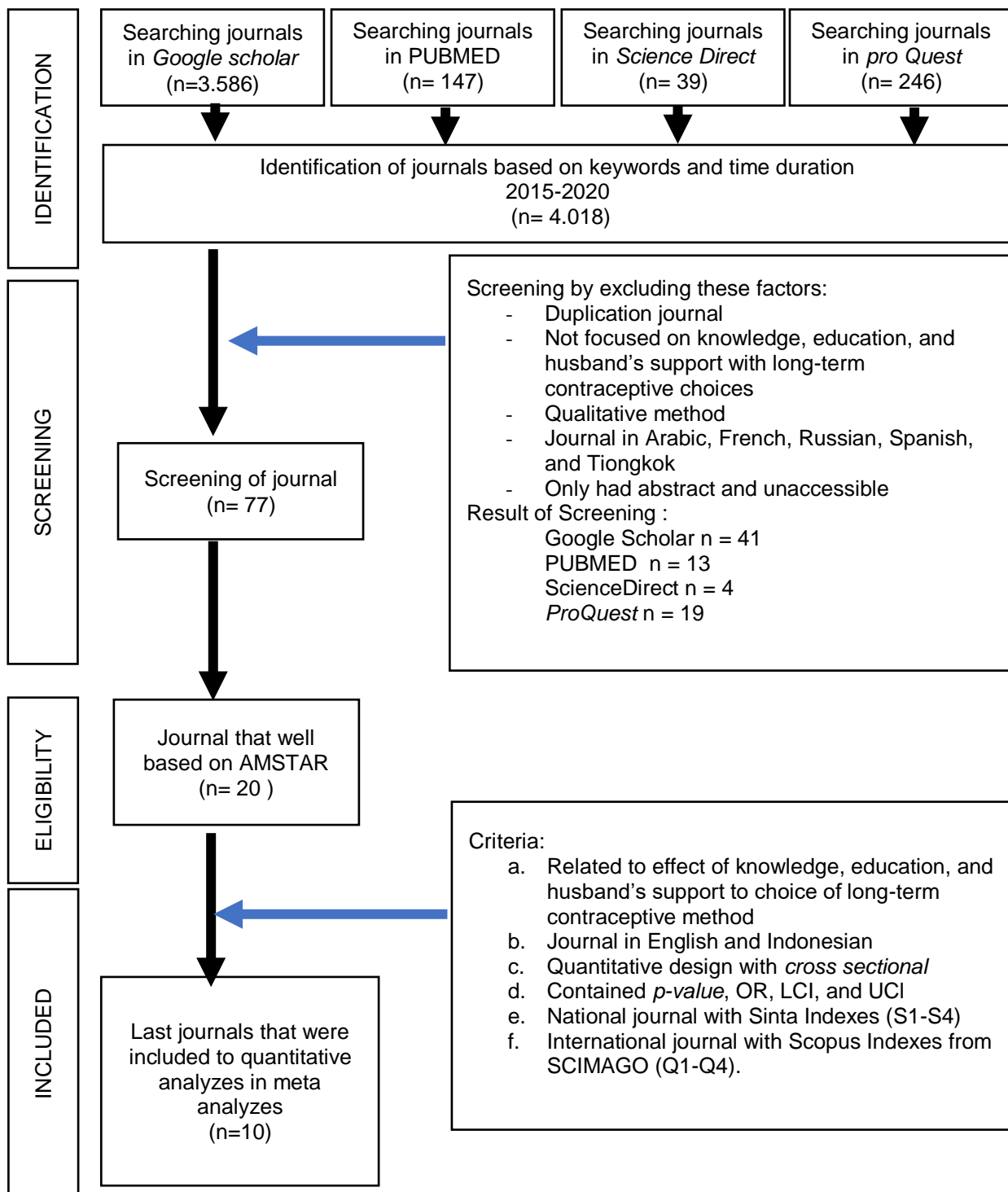


Figure 1. Journal Search Results Based on PRISMA Diagrams

Table 1. Journal that fulfills the synthesis of Meta-Analysis

No	Author	Year	Title	Database
1	Chacko, et.al <sup>11</sup>	2016	Choice of Postpartum Contraception: Factors Predisposing Pregnant Adolescent to Choose Less Effective Method Over Long-Acting Reversible Contraception	PUBMED
2	Demeke, et.al <sup>12</sup>	2020	Utilization Pattern of Long-Acting and Permanent Family Planning Methods and Associated Factors: A Community-Based Cross-Sectional Study in Ethiopia	PUBMED
3	Woldu, et.al <sup>13</sup>	2020	Long-acting reversible contraception utilization and associated factors among women in extended postpartum period in Hossana town, southern Ethiopia: cross sectional study	PUBMED
4	Medhanyie, et.al <sup>14</sup>	2017	Factors associated with contraceptive use in Tigray, North Ethiopia	PUBMED
5	Asad, et.al <sup>15</sup>	2019	Changes in the use of effective and long-acting reversible contraception in Vietnam	Science direct
6	Aregay, et.al <sup>16</sup>	2018	Utilization of long acting reversible contraceptive methods and associated factors among female college students in Gondar town, northwest Ethiopia, 2018: institutional based cross sectional study	ProQuest
7	Bhandari, et.al <sup>17</sup>	2019	Long acting reversible contraception use and associated factors among married women hy	ProQuest
8	Ontiri, et.al <sup>18</sup>	2019	Long-Acting Reversible Contraception Uptake and Associated Factors among Women of Reproductive Age in Rural Kenya	ProQuest
9	Ajong, et.a <sup>19</sup>	2018	Contraceptive method mix and preference: A focus on long acting reversible contraception in Urban Cameroon	ProQuest
10	Hibstu and Alemayehu <sup>20</sup>	2020	Long action reversible contraceptives utilization and associated factors among women of reproductive age in Arsi Negele town, Southeastern Ethiopia	ProQuest
11	Shiferaw and Musa <sup>21</sup>	2017	Assessment of utilization of long acting reversible contraceptive and associated factors among women of reproductive age in Harar City, Ethiopia	ProQuest
12	Desalegn, et.al <sup>22</sup>	2019	Utilization of long-acting and permanent contraceptive methods an associated factors among married women in Adama town, Central Ethiopia: community based cross sectional study	ProQuest
13	Gultie, et.al <sup>23</sup>	2016	Predictors of long acting contraceptives utilization among reproductive age women in Arba Minch Zuria district, Ethiopia	Google scholar
14	H., et.al <sup>24</sup>	2017	Prevalence and Determinant Factors of Long Acting Contraceptive Utilization among Married Women of Reproductive Age in Adaba Town, West Arsi Zone, Oromia, Ethiopia	Google scholar
15	Getahun, et.al <sup>25</sup>	2018	Utilization and determinants of long term and permanent contraceptive methods among married reproductive age women at Janamora district, northwest Ethiopia	Google scholar
16	Mahendra et.al <sup>26</sup>	2019	The Role of decision-making pattern on the use of long acting and permanent contraceptive methods among married women in Indonesia	Google scholar
17	Tilahun, Yoseph, and Dangisso <sup>27</sup>	2020	Utilization and predictors of long acting reversible contraceptive methods among reproductive age women in Hawassa city, South Ethiopia: a community based mixes methods	Google scholar
18	Tesfa and Gedamu <sup>28</sup>	2018	Factors associated with utilization of long term family planning methods among women of reproductive age attending Bahir Dar health facilities, Northwest Ethiopia	Google scholar
19	Gayatri <sup>29</sup>	2020	The Utilization of Long-Acting Reversible Contraception and Associated Factors Among Women in Indonesia	Google scholar
20	Kusumaningrum et.al <sup>30</sup>	2020	Improving a long-acting reversible contraception usage by understanding client perspectives	Google scholar

### The effect of knowledge on the choice of long-acting contraceptive methods

For data quality the effect of knowledge on the choice of long-acting contraceptive methods with a sample of relevant journal search results (n = 11), there are 7 journals that state there is an effect of knowledge, and 4 journals that state there is no influence of knowledge. Then, the results of the meta-analysis synthesis in the 11 journals resulted in a chi-square heterogeneity value ( $p = 0,000$  under  $p < 0.05$  and a value of  $I^2 = 74,80\%$  greater than 50%, meaning that it has a heterogeneous distribution, so the Random Effect is used. Model.

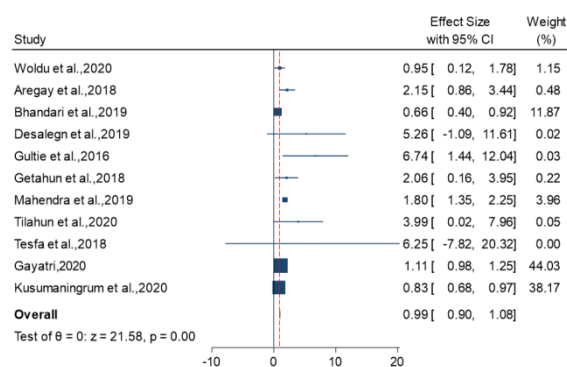


Figure 2. Forest Plot of The Effect of Knowledge on the Selection of Long-acting Contraceptive Methods

In the forest plot in Figure 2, there is a diamond shape (◆) which is the value of the effect size for each study with a certain confidence interval and a square shape that represents the weight of each journal. The narrower the diamond size indicates that the more accurate the conclusions are drawn and the wider the diamond size indicates that the conclusions drawn have a wide deviation.<sup>31</sup> The largest percentage of study weight in the Gayatri study (2020) was 44,03% with a sample of 4,307 respondents. The greater the percentage weight of the study indicates that the study has a large sample size and a high odds ratio with a narrow confidence interval range so that the study has good data quality.

Of the 11 studies, the value of  $p = 0.000 < 0.05$  and the combined effect size of OR on the effect of knowledge on the choice of long-acting contraceptive methods were 0.99 with a wide confidence interval (95% CI) lower limit of 0.90-1.08. This means that there is an effect of knowledge on the choice of long-acting contraceptive methods with an effect of 0.99 times compared to respondents who do not know about long-acting contraceptive methods. Apart from seeing the magnitude of the combined effect of the 11 journals, publication

bias also needs to be seen from the results of the funnel plot.

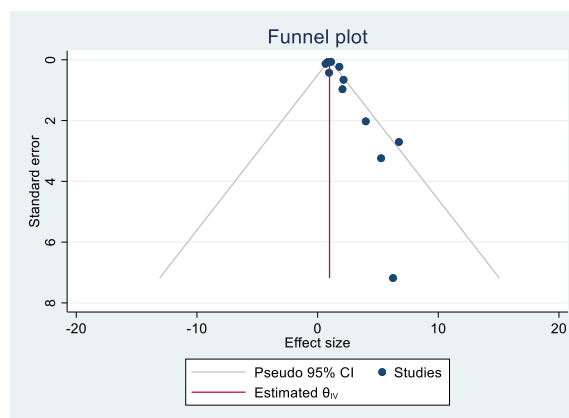


Figure 3. Funnel Plot the Effect of Knowledge on Long-acting Contraceptive Method Selection

The funnel plot is plotted from the effect size on the x-axis and the sample size or variance on the y-axis. While the use of standard errors (not sample size or variance) on the y-axis has the advantage of spreading the points at the bottom of the scale and making it easier to identify asymmetries (an indicator that research is missing or unpublished).<sup>32</sup> In Figure 3, the distribution plot is asymmetrical. The funnel plot is depicted based on the effect size value and the standard error value. This shows that the 11 journals form a plot, most of which are at the top of the chart and are clustered around the Summary Effect (peak) because the sample size in the journal is quite large.<sup>32</sup> However, the distribution of plots is asymmetrical to the right of the triangle area which indicates that there is still publication bias.

### The effect of education on the choice of long-acting contraceptive methods

For the quality of data on the effect of education on the choice of long-acting contraceptive methods, there are search results (n = 16) of relevant journals, there are 8 journals that state there is an effect of education, and 8 journals that state there is no effect of education. Then, the results of the synthesis of meta-analysis in the 16 journals resulted in a chi-square heterogeneity value ( $p = 0,000$  under  $p < 0,05$  and a value of  $I^2 = 86,3\%$  greater than 50%, meaning that it has a heterogeneous distribution, so the Random Effect is used. Model.

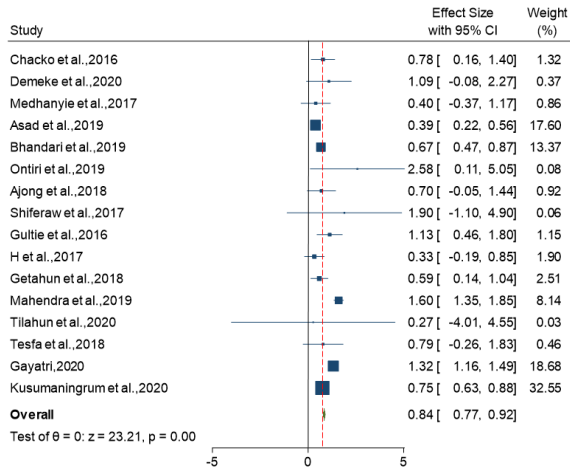


Figure 4. *Forest Plot of The Effect of Education on the Selection of Long-acting Contraception Methods*

Furthermore, in Figure 4 the resulting forest plot with the combined diamond size is quite narrow, which shows that the more accurate the resulting conclusions are. The largest percentage of study weight in the journal Kusumaningrum et al. (2020) 32,55% with a sample of 6,384 respondents. The greater the percentage weight of the study indicates that the study has a large sample size and a high odds ratio with a narrow confidence interval range so that the study has good data quality.

From these 16 journals, the value of  $p = 0,000 < 0,05$  and the combined effect size of OR on the influence of knowledge on the choice of long-acting contraceptive methods are 0,84 with a wide confidence interval (95% CI), a lower limit of 0,77-0,92. This means that there is an effect of education on the choice of long-acting contraceptive methods with an effect of 0,844 times compared to respondents who have never received formal education.

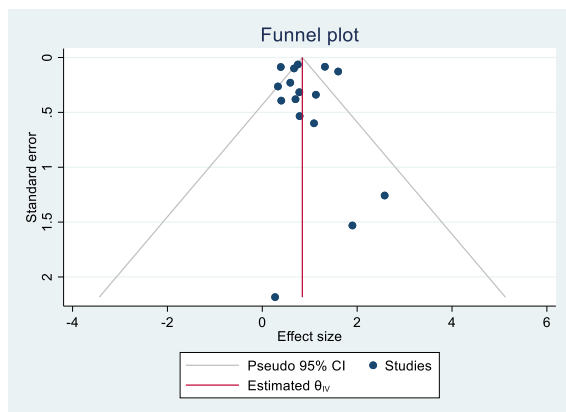


Figure 5. *Funnel Plot of The Effect of Education on the Selection of Long-acting Contraception Methods*

Figure 5 illustrates a fairly even distribution of the funnel plot with plots that are mostly at the top of the graph and clustered around the Summary Effect (peak) because the sample size in the journal is quite large and symmetrical in the triangle area. This shows that the distribution of plots is evenly distributed at a low confidence interval (95% CI) so that the publication bias that occurs is not significant.

**The effect of husband's support on the choice of long-acting contraceptive methods**

For the quality of data on the influence of husband's support on the choice of long-acting contraceptive methods, there are search results (n = 10) of relevant journals, there are 8 journals that state there is an effect of husband's support, and 2 journals that state there is no influence of husband's support. Then, the results of the synthesis of meta-analysis in the 10 journals resulted in a chi-square heterogeneity value ( $p = 0,000$  under  $p < 0,05$ ) and a value of  $I^2 = 81,5\%$  greater than 50%, meaning that it has a heterogeneous distribution, so random is used. Effect Model.

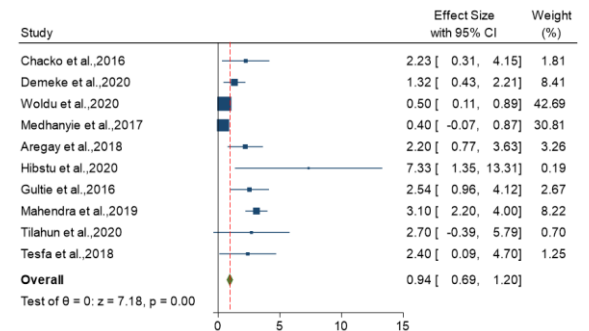


Figure 6. *Forest Plot of The Effect of Husband's Support on the Selection of Long-Acting Contraceptive Methods*

Furthermore, in Figure 6, the forest plot with a diamond (♦) shape is quite narrow, which shows that the more accurate the conclusions are. The largest percentage of study weight in the study of Woldu et al. (2020) of 42.69% with a sample of 381 respondents. The greater the percentage weight of the study indicates that the study has a large sample size and a high odds ratio with a narrow confidence interval range so that the study has good data quality.

Of these 10 journals, the value of  $p = 0,000 < 0,05$  and the combined effect size of OR on the influence of husband's support on the choice of long-acting contraceptive method are 0.94 with a wide confidence interval (95% CI), a lower limit of 0,69-1,20. This means that there is an effect of husband's support on the

choice of long-acting contraceptive methods with an effect of 0.94 times compared to respondents who are not supported by their husbands or partners.

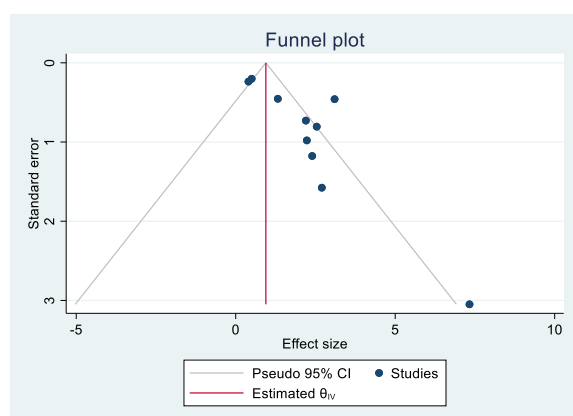


Figure 7. *Funnel Plot* of The Effect of Husband's Support on the Selection of Long-acting Contraceptive Methods

In Figure 7, the Funnel Plot Influence of Husband's Support on the Choice of Long-acting Contraceptive Methods illustrates the distribution of funnel plots that are mostly at the top with a range between numbers 0 and 2. The plots are mostly at the top of the graph and are clustered around the Summary Effect (peak) because the sample size in the journal is quite large and symmetrical on the right and left of the triangle area. This shows that the research carried out is representative of the population so that the publication bias that occurs is quite small.

From the research conducted, it is concluded that the value of the largest combined effect size is in the knowledge of 0.99; husband's support of 0.94; and education 0.84. This shows that knowledge is the factor that has the greatest influence on the choice of long-acting contraceptive methods among the three factors. If it is related to the Family Planning Concept by Jane T. Bertrand (1995), it explains that the willingness to use the contraceptive method is influenced by socio-demographic factors which include marital status, age, number of children, parity, religion, knowledge of contraception, partner support, education level, and the amount of income.<sup>33</sup> Another concept based on Upadhyay (2001) explains that one of the factors that influence the decision to have contraception is a personal situation related to socio-demographics such as age, gender, education level, marital status, health status, divorce status, number of children, income, information media, life cycle, support and communication with partners, as well as perceptions and knowledge of

contraception.<sup>34</sup> Both of these concepts are in line with Lawrence Green's theory (1980). According to Lawrence Green's theory (1980) which states that the factors that influence the formation of health behavior in society are divided into facilitating factors (knowledge, attitudes, employment, education, income, and culture), supporting factors (distance of access and costs), and driving factors (behavior or the role of health workers and husband or family support).<sup>35</sup>

Knowledge is a form of human sensing or the result of a person's knowledge of objects obtained through their senses such as hearing (ears) and sight (eyes). Lack of knowledge about contraception is one of the main factors in not using family planning in populations with low contraceptive prevalence. A person's education level also affects his actions in finding solutions to existing problems. Someone with higher education will act more rationally so that it will be easier to accept new ideas. In addition, the decision to choose a long-acting contraceptive method is also influenced by the support of the husband. Changes in health behavior are intervened by support and communication with partners.<sup>36</sup>

If it is related to policies regarding long-acting contraceptive methods, such as the Regulation of the Head of the National Population and Family Planning Agency Number 165 of 2011 concerning Long acting Contraceptive Method KB Service Policy, Regulation of the Head of the National Population and Family Planning Agency Number 14 of 2017 concerning Movement of Family Planning Services as well as Ayoman Complications and Contraceptive Failures, and other regulations. The policy contains guidelines related to efforts to equalize access to and quality of contraceptive family planning services in the long term through promotional activities, IEC, ensuring the availability of supporting facilities, increasing partnerships in services, and monitoring evaluation. This policy was made to serve as a reference in increasing participation in the use of long-acting contraceptive methods, however, the long-acting outcomes of contraceptive methods are still low. For this reason, it is necessary to study further in future policy formulation by considering aspects of the theory of health behavior in society, especially those related to knowledge, education, and support of husbands.

## CONCLUSION

Based on the research, this meta-analysis study gave the result that there was an influence of knowledge of 0.99; education of

0.84; and husband's support of 0.84 for the choice of long-acting contraceptive methods. This meta-analysis research produces stronger and more accurate conclusions that can be used as a reference for policy-making related to efforts to improve the long-acting performance of contraceptive methods in the future.

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