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ISSN: 0258-2724

CODEN: XJDXEW

**Competent Authority:** The Ministry of Education of P.R.China.

**Sponsor:** Southwest Jiaotong University

**Editor-in-Chief:** Professor Zhai Wanming

**Domestic Subscription:** All Local Post Offices in China

**Domestic Distributor:** Chengdu Post office

**Overseas Distributor:** China International Book Trading Corporation (P.O. Box 399, Beijing 100044, China; Overseas Subscription Code: BM853)

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ISSN: 0258-2724

DOI : 10.35741/issn.0258-2724.58.2.4

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**MEDIA EXPOSURE AS A PREDICTOR OF CONTRACEPTIVE USE AMONG  
CHILDBEARING AGE WOMEN IN INDONESIA**

## 媒体曝光率作为印度尼西亚育龄妇女避孕药具使用的预测因素

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*Received: January 4, 2023* ▪ *Reviewed: February 7, 2023*  
▪ *Accepted: March 3, 2023* ▪ *Published: April 28, 2023*

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**Abstract**

The study analyzes media exposure as a predictor of contraceptive use among childbearing-age women in Indonesia. The study employed secondary data from the 2017 Indonesian Demographic Data Survey. This study's analysis unit was childbearing-age women (15-49 yo.), totaling 49,627 respondents. Media exposure includes newspapers/magazines, radio, television, and the internet. Binary Logistic Regression was used for the final test to determine the predictors. The results show that the frequency of reading newspapers or magazines partially affects contraceptive use. Meanwhile, the frequency of listening to the radio had no significant effect on contraceptive use. Women who watch television less than once a week are 1.433 times more likely than those who do not watch television. Women who watch television at least once a week are 1.737 times more likely than those who do not watch television to use a contraceptive. The more often women see television, the higher the likelihood of using contraceptives. On the other hand, internet use has had a partial effect on contraceptive use. The study concludes that the types of media exposure that can predict contraceptive use in women of childbearing age in Indonesia are the frequency of reading newspapers, watching television, and using the internet. The frequency of watching television has the most substantial influence on contraceptive use. The novelty and scientific contribution of the study was the media exposure as a predictor of contraceptive use among childbearing-age women. Previous studies rarely disclose information about it.

**Keywords:** Media Exposure, Contraceptive Use, Family Planning, Childbearing Age, Population



**摘要** 该研究分析了媒体曝光作为印度尼西亚育龄妇女避孕药具使用情况的预测因素。该研究使用了2017年印度尼西亚人口数据调查的二手数据。本次研究的分析单位为育龄女性（15-49岁），共计49,627名受访者。媒体曝光包括报纸/杂志、广播、电视和互联网。二元逻辑回归用于最终测试以确定预测变量。结果表明，阅读报纸或杂志的频率部分影响避孕药具的使用。同时，收听广播的频率对避孕药具的使用没有显著影响。每周看电视少于一次的女性比不看电视的女性患病的可能性高1.433倍。每周至少看一次电视的女性使用避孕药具的可能性是不看电视的女性的1.737倍。女性看电视的次数越多，使用避孕药具的可能性就越高。另一方面，互联网的使用对避孕药具的使用产生了部分影响。该研究得出结论，可以预测印度尼西亚育龄妇女避孕药具使用情况的媒体曝光类型是阅读报纸、看电视和使用互联网的频率。看电视的频率对避孕药具的使用影响最大。该研究的新颖性和科学贡献是媒体曝光作为育龄妇女避孕药具使用的预测指标。以前的研究很少透露有关它的信息。

**关键词:** 媒体曝光、避孕药具使用、计划生育、生育年龄、人口

## I. INTRODUCTION

The population is overgrowing in developing countries, and the impact is that the country's population has not enjoyed a decent life. They have malnutrition, poor health, low education, birth, and high death rates. In Indonesia, maternal death and illness are always a big problem. The maternal mortality rate in Indonesia, compared to other countries in Southeast Asia, is still around 3-6 times [1]. Therefore, various population programs have implemented to reduce the burden of poverty, ignorance, and underdevelopment due to population pressure. Family planning is one of the primary preventive health services for women. The family planning program intends to form small families following socioeconomic strength [2].

The family planning program has strategic, comprehensive, and fundamental meaning in realizing a healthy and prosperous the Indonesians. Law No. 52/2009 on Population Development and Family Development states that family planning is an effort to regulate childbirth, distance, and ideal birth age, control pregnancy and promote, protect, and assist in following reproductive rights to create quality families. The government is trying to influence community thinking through family planning program advertisements that are socialized with various media so that the community's reproductive health behavior can change according to the family planning program offered [3], [4].

The dissemination of health information is an important aspect that can achieve success in achieving health development goals. This diffusion of the information diffusion process is a strategic study in media and communication science because a successful diffusion process

will provide a significant multiplying effect [5]. Normatively, health communication's structural influence model states that information reception inequality will also affect the expected impacts, and the more information received, the more influence the desired behavior [6], [7].

In addition to conventional media, social media is used to disseminate health information. Social media is a new era in increasingly intensive communication to use technological advancements in this realm. All fields must follow this trend if they do not want to be obsolete, especially in the health sector, related to communication problems or the public's information delivery. Its effectiveness that can reach thousands and even millions of targets quickly makes this media a new belle for every health promoter with massive orientation [8].

Suitable health-promotion media can provide health information or messages following the level of target acceptance. A reason for choosing health promotion media for health promoters is to adjust to the target's tastes, not to program managers' or decision-maker's preferences. This suitability can stimulate the target to forward the message received to others [9]. Chain impact is a measure of the effectiveness of media in conveying a message. The target perception of media messages indirectly influences behavioral intentions through communicative behavior [10]. Based on this background, what is the role of media exposure in contraceptive use among child-bearing-age women in Indonesia?

### A. Objective of the Study

The study analyzes media exposure as a predictor of contraceptive use among childbearing-age women in Indonesia. This study's results can reference interested parties to

increase contraceptive use in Indonesia to choose the type of media that effectively follows the target audience.

## II. MATERIALS AND METHODS

### A. Data Source

The study uses the 2017 Indonesian Demographic Data Survey (IDHS) data. The unit of analysis in this study was childbearing-age women (15-49 years old). By using stratification and multistage random sampling methods, the study obtained a sample of 49,627 respondents.

### B. Variables

The study employed contraceptive use as an outcome variable. Contraceptive use was the respondent's acknowledgment of using the contraceptive method at the time of the interview. Moreover, contraceptive use comprises two categories: do not use and use.

After this, the study used media exposure as an exposure variable. Media exposure was the respondent's acknowledgment of exposure to newspaper/magazine, radio, television, and internet media. We analyzed five variables as i.e. exposure, i.e., the frequency of reading newspapers or magazines, frequency of listening to the radio, frequency of watching television, use of the internet, and frequency of using the internet last month. The frequency of reading a newspaper or magazine, frequency of listening to the radio, and frequency of watching television, consists of three types: not at all, Less than once a week, and At least once a week. Meanwhile, the use of the internet consists of three categories: "never", "yes, last 12 months", and "yes, before the last 12 months". The frequency of using the internet last month consists of four levels: "not at all", "less than once a week", "at least once a week", and "almost every day".

The study also employed six variables control. The six were age, parity, education level, employment status, marital status, and wealth status. Age was determined based on the basis of the last birthday, and parity was the number of babies born alive. Meanwhile, education consisted of primary, secondary, and higher categories. Regarding employment status, there were two categories: unemployed and employed. Marital status consists of three types: never in union, married/living with a partner, and divorced/widowed.

The IDHS calculated the wealth status based on the family-rich quintiles. The survey estimated the numbers and types of everyday items, including televisions, bicycles, cars, and housing

features, such as drinking water, sanitation facilities, and primary flooring materials in households. This research measures the results of these variables using critical factor analysis. For each individual in the family, national wealth quintiles were arranged based on household scores and then divided by the distribution into the same five categories, 20% of which accounted for the population, namely quintile 1 (poorest), quintile 2 (poorer), quintile 3 (middle), quintile 4 (richer), and quintile 5 (richest) [11], [12].

### C. Data Analysis

Contraceptive use was the respondent's acknowledgment of using the contraceptive method at the time of the interview. After this, the respondent's acknowledgment of exposure to newspaper/magazine, radio, television, and internet media was media exposure. Other variables analyzed as independent variables were age, parity, education level, employment status, marital status, and wealth status.

A chi-square test uses to select dichotomous variables, and a T-test is used for continuous variables. This test was to see the relationship between the independent variable and contraceptive use as the dependent variable. Because of the dependent variable's nature, Binary Logistic Regression was used for the final test to determine predictors. SPSS 26 software is used for all stages of statistical analysis.

### D. Ethical Approval

The 2017 IDHS obtains an ethical clearance from the National Institute of Health Research and Development, the Indonesia Ministry of Health. The researcher deletes the respondents' identities from the dataset. Respondents have provided written approval for their involvement in the study. Through the website: <https://dhsprogram.com/data/new-user-registration.cfm>, researchers have obtained permission to use data for this study

## III. RESULTS

The results show that the proportion of contraceptive use among childbearing-age women in Indonesia is around 62.1%. Meanwhile, Table 1 is a descriptive statistics of contraceptive use, individual characteristics, and media exposure among childbearing-age women in Indonesia. Table 1 shows that the average childbearing-age woman who did not use contraceptives was younger than those who used contraceptives. Based on parity, it can also see that those who do not use contraceptives have a

lower parity average.

Table 1 shows that dominant respondents have secondary education levels and employed childbearing age women based on education level and employment status. Meanwhile, based on marital status, Table 1 informs respondents who are predominantly married or living with partners. Table 1 shows that the respondents were dominated by those who were the poorest. This condition applies to those who use or do not use a contraceptive.

Table 1 shows that the respondents were dominated by those who did not read a newspaper or magazine. Respondents were also

dominant in those who did not listen to the radio. On the other hand, Table 1 shows that respondents are dominated by those who watch television at least once a week. Based on internet use, respondents who do not use contraceptives are dominated by those who have used the internet last 12 months. Meanwhile, respondents who use contraceptives are dominated by those who never use the internet. Based on the frequency of using the internet last month, almost every day category, respondents who do not use contraceptives dominated. On the other hand, respondents who use contraceptives are not overwhelmed by every type.

Table 1.

Descriptive statistics of contraceptive use, individual characteristics, and media exposure among childbearing age women in Indonesia (n = 49,627)

| Predictors variables                        | Contraceptive Use |         |       |         | p-value |
|---|-------------------|---------|-------|---------|---------|
|   | Do not use        |         | Use   |         |         |
|   | n                 | %       | n     | %       |         |
| Characteristics                             |                   |         |       |         |         |
| Age (mean)                                  | 28575             | (28.92) | 21052 | (35.20) | < 0.001 |
| Parity (mean)                               | 28575             | (1.15)  | 21052 | (2.54)  |         |
| Education level                             |                   |         |       |         | < 0.001 |
| No education                                | 629               | 2.2%    | 275   | 1.3%    |         |
| Primary                                     | 5520              | 19.3%   | 6739  | 32.0%   |         |
| Secondary                                   | 16081             | 56.3%   | 11259 | 53.5%   |         |
| Higher                                      | 6345              | 22.2%   | 2779  | 13.2%   |         |
| Employment Status                           |                   |         |       |         | < 0.001 |
| Unemployed                                  | 13926             | 48.7%   | 8976  | 42.6%   |         |
| Employed                                    | 14649             | 51.3%   | 12076 | 57.4%   |         |
| Marital status                              |                   |         |       |         | < 0.001 |
| Never in union                              | 12675             | 44.4%   | 26    | 0.1%    |         |
| Married/living with a partner               | 13546             | 47.4%   | 20921 | 99.4%   |         |
| Widowed/divorced                            | 2354              | 8.2%    | 105   | 0.5%    |         |
| Wealth status                               |                   |         |       |         | < 0.001 |
| Poorest                                     | 6461              | 22.6%   | 4564  | 21.7%   |         |
| Poorer                                      | 5250              | 18.4%   | 4234  | 20.1%   |         |
| Middle                                      | 5245              | 18.4%   | 4208  | 20.0%   |         |
| Richer                                      | 5582              | 19.5%   | 4104  | 19.5%   |         |
| Richest                                     | 6037              | 21.1%   | 3942  | 18.7%   |         |
| Media Exposure                              |                   |         |       |         |         |
| Frequency of reading newspapers or magazine |                   |         |       |         | < 0.001 |
| Not at all                                  | 14160             | 49.6%   | 12551 | 59.6%   |         |
| Less than once a week                       | 10784             | 37.7%   | 6524  | 31.0%   |         |
| At least once a week                        | 3631              | 12.7%   | 1977  | 9.4%    |         |
| Frequency of listening to a radio           |                   |         |       |         | < 0.001 |
| Not at all                                  | 15491             | 54.2%   | 12760 | 60.6%   |         |
| Less than once a week                       | 9264              | 32.4%   | 5781  | 27.5%   |         |
| At least once a week                        | 3820              | 13.4%   | 2511  | 11.9%   |         |
| Frequency of watching television            |                   |         |       |         | < 0.001 |
| Not at all                                  | 1326              | 4.6%    | 753   | 3.6%    |         |
| Less than once a week                       | 4341              | 15.2%   | 2350  | 11.2%   |         |
| At least once a week                        | 22908             | 80.2%   | 17949 | 85.3%   |         |
| Use of Internet                             |                   |         |       |         | < 0.001 |
| Never                                       | 11320             | 39.6%   | 13407 | 63.7%   |         |
| Yes, the last 12 months                     | 16846             | 59.0%   | 7294  | 34.6%   |         |
| Yes, before the last 12 months              | 409               | 1.4%    | 351   | 1.7%    |         |
| Frequency of using the internet last month  |                   |         |       |         | < 0.001 |
| Not at all                                  | 11940             | 41.8%   | 13903 | 66.0%   |         |
| Less than once a week                       | 1122              | 3.9%    | 508   | 2.4%    |         |
| At least once a week                        | 3178              | 11.1%   | 1499  | 7.1%    |         |
| Almost every day                            | 12335             | 43.2%   | 5142  | 24.4%   |         |

Note: The chi-square test was used for dichotomous variables and the T-test for continuous variables.

Before continuing the binary logistic regression test stage analysis, a colinearity test carried between contraceptive use as the dependent variable and all independent variables. The test results showed no colinearity between the dependent and independent variables. The analysis development informs that all variables'

tolerance value is more significant than 0.10, and simultaneously, the VIF value for all variables is less than 10.00. Then referring to the basis of decision-making in the test, it can conclude that there are no multicollinearity symptoms in the regression model.

Table 2.

Binary logistic regression of the contraceptive use among childbearing age in Indonesia (n = 49,627)

| Predictor   | Contraceptive Use |         |             |             |
|---|-------------------|---------|-------------|-------------|
|   | Sig.              | AOR     | 95% CI      |             |
|   |                   |         | Lower Bound | Upper Bound |
| <b>Characteristics</b>  |                   |         |             |             |
| Age   | < 0.001**         | 0.960   | 0.957       | 0.963       |
| Parity  | < 0.001**         | 1.430   | 1.403       | 1.458       |
| Education: No education                                       | -                 | -       | -           | -           |
| Education: Primary  | < 0.001**         | 2.900   | 2.452       | 3.430       |
| Education: Secondary  | < 0.001**         | 3.016   | 2.543       | 3.575       |
| Education: Higher   | < 0.001**         | 2.487   | 2.070       | 2.989       |
| Employment status: Unemployed                                 | -                 | -       | -           | -           |
| Employment status: Employed                                   | < 0.001**         | 1.143   | 1.091       | 1.197       |
| Marital status: Never in union                                | -                 | -       | -           | -           |
| Marital status: Married/living with a partner                 | < 0.001**         | 570.287 | 386.765     | 840.891     |
| Marital status: Widowed/divorced                              | < 0.001**         | 16.137  | 10.428      | 24.970      |
| Wealth status: Poorest  | -                 | -       | -           | -           |
| Wealth status: Poorer   | < 0.001**         | 1.377   | 1.282       | 1.478       |
| Wealth status: Middle   | < 0.001**         | 1.501   | 1.395       | 1.616       |
| Wealth status: Richer   | < 0.001**         | 1.517   | 1.405       | 1.638       |
| Wealth status: Richest  | < 0.001**         | 1.670   | 1.532       | 1.821       |
| <b>Media exposure</b>   |                   |         |             |             |
| Freq. of reading news/magazine: Not at all                    | -                 | -       | -           | -           |
| Freq. of reading news/magazine: Less than once a week         | *0.002            | 0.918   | 0.869       | 0.970       |
| Freq. of reading news/ magazine: At least once a week         | 0.933             | 0.996   | 0.914       | 10.087      |
| Freq. of listening to the radio: Not at all                   | -                 | -       | -           | -           |
| Freq. of listening to the radio: Less than once a week        | 0.910             | 1.003   | 0.949       | 1.060       |
| Freq. of listening to the radio: At least once a week         | 0.060             | 1.072   | 0.997       | 1.154       |
| Freq. of watching television: Not at all                      | -                 | -       | -           | -           |
| Freq. of watching television: Less than once a week           | < 0.001**         | 1.433   | 1.263       | 1.626       |
| Freq. of watching television: At least once a week            | < 0.001**         | 1.737   | 1.549       | 1.949       |
| Use of the internet: Never                                    | -                 | -       | -           | -           |
| Use of the internet: Yes, the last 12 months                  | 0.004*            | 0.693   | 0.539       | 0.891       |
| Use of the internet: Yes, before the last 12 months           | 0.694             | 0.965   | 0.808       | 1.152       |
| Freq. of using the internet last month: Not at all            | -                 | -       | -           | -           |
| Freq. of using the internet last month: Less than once a week | 0.895             | 0.981   | 0.742       | 1.298       |
| Freq. of using the internet last month: At least once a week  | 0.281             | 1.154   | .890        | 1.497       |
| Freq. of using the internet last month: Almost every day      | 0.314             | 1.139   | .884        | 1.466       |

Notes: 95% CI; \* p < 0.01; \*\* p < 0.001

Table 2 shows the estimated contraceptive use results among childbearing-age women in Indonesia. All respondent characteristics and media exposure were involved in the next stage. The binary logistic regression test reference is "do not use."

Table 2 shows that age and parity significantly affect contraceptive use. Meanwhile, based on education level, childbearing-age women with primary education are 2.900 times

more likely to use contraceptives than those without education (AOR 2.900; 95% CI 2.452-3.430). Childbearing-age women with secondary education are 3.016 times more likely to use contraceptives than those without education (AOR 3.016; 95% CI 2.543-3.575). People with higher education were 2.487 times more likely to use contraceptives than those without education (AOR 2.487; 95% CI 2.070-2.989).

Table 2 shows that employed childbearing-

age women are 1.143 times more likely to use contraceptives than those unemployed (AOR 1.143; 95% CI 1.091-1.197). Childbearing-age women who are married or living with partners are 570.287 times more likely to use contraceptives than those who have never been in a union (AOR 570.287; 95% CI 386.765-840.891). Widowed/divorced women are 16.137 times more likely to use contraceptives than those who have never been in a union (AOR 16.137; 95% CI 10.428-24.970).

Table 2 shows that women of childbearing age with wealth lower status are 1.377 times more likely to use contraceptives than the poorest (AOR 1.377; 95% CI 1.282-1.478). Childbearing women with the wealthiest wealth status are 1.670 times more likely to use contraceptives than the poorest (AOR 1.670; 95% CI 1.532-1.821). The better the wealth status is proven, the more likely it is to use a contraceptive.

Table 2 shows that the frequency of reading a newspaper or magazine in partial proves a significant effect on contraceptive use. Meanwhile, the frequency of listening to the radio has no considerable impact on contraceptive use.

Childbearing-age women who watch television less than once a week are 1.433 times more likely than those who do not (AOR 1.433; 95% CI 1.263-1.626). Childbearing-age women who watch television at least once a week are 1.737 times more likely than those who do not watch television to use contraceptives (AOR 1.737; 95% CI 1.549-1.949). This analysis shows that the more often childbearing-age women see television, the higher the likelihood of using contraceptives. On the other hand, the study found that internet use has a partial effect on contraceptive use.

#### IV. DISCUSSION

Globally, unmarried women who use contraception are estimated at 15.7% in 2019, after, previously, 2000, as much as 12.1%. This increase is due to the rise in the proportion of unmarried women and increased contraceptive use among them [25]. The situation is also a result of the increasing median age of marriage and the widening distance between menarche and age at first marriage [26]. Meanwhile, we found that unmarried women who use contraception in Indonesia are lower, only around 5.4%. This condition indicates a dilemma related to ethics and prevailing social norms. Most Indonesians consider contraceptive use taboo for unmarried women; It is synonymous with sexual activity outside the bonds of marriage [9]. Besides,

premarital sexual activity and cohabitation violate Indonesia's legal norms [9], [27]. Although legal norms are still being debated in Indonesia, it cannot be denied that contraceptives used among teenagers already exist in Indonesia. The government must be more open to this reality and develop policies to anticipate this situation.

The results of the study found that age and parity have a significant effect on contraceptive use. The older, the higher the likelihood of having a likeness, so using a contraceptive is greater. This situation is related to contraceptive methods for pregnancy prevention [13], [14].

Health literacy is a combination of a conceptual frame and social ability to access, conceive, and use the information to promote and increase life quality [15]. The analysis found that education determines contraceptive use in Indonesia. These findings are similar to research in Northwest Ethiopia, Nigeria, and India, which explains the respondents' level of education as a predictor of contraceptive use [16], [17], [18]. Responding with good education will need to read information about contraceptive methods. Respondents with a good education will be eager to read news about contraceptive methods. Women's education is the most significant variable correlated with contraceptive use in developing countries [19], [20]. Married women who had finished their higher education were more likely to use contraceptive methods [21]. Education is an important segment to influencing the practice of contraceptives. It is also related to the study in Ghana that explained that intellectual women could comprehend the positive impact of contraceptives and having fewer children [22]. They would also be acquiring the appropriate contraceptive methods [23]. Many studies have found that education positively affects many health outcomes [7], [24], [25], [26], [27].

This study found that one predictor of contraceptive use in Indonesia is employment status. It remains the result of a task in Central Java, Indonesia, that explained the employment status related to contraceptive use [28], [29]. A woman with a high income will limit the number of births more than women who do not work (no payment). Employment status will also impact the choice of contraceptive methods for a long-term contraceptive that requires more costs than short-term [23], [24], [25], [26], [27], [28], [29], [30].

The results found that childbearing-age women who are married or living with partners are more likely to use a contraceptive method. This study contradicts the research conducted in

Sierra Leone, which explains that married women have lower enthusiasm for contraceptives than unmarried women [31]. There is an assumption that married women who use contraceptive methods will be associated with infidelity [32], [33]. However, this study's results are supported by other studies explaining that married women tend to use contraceptives because of a partner's support [34], [35], [36].

The study results inform that the better the wealth status, the more likely it is to use a contraceptive. A study conducted in Iran shows that higher wealth will increase the opportunity to use contraceptives, mostly traditional contraceptive methods [23]. Another fact indicated that women with higher wealth status were more likely to use modern contraceptives than women with less wealth. It was related to media exposure and education related to better knowledge of contraceptive use among women [14], [37]. Wealth status and education level were found to be positive determinants of performance in the health sector [12], [38].

The analysis results found that the frequency of reading a newspaper or magazine in partial proved a significant effect on contraceptive use. This study's products are not in line with the survey in West Africa, which explains that printed family planning information had almost no influence on modern contraceptive method use [39].

The analysis results indicate that women who watch television have a better chance of using contraceptives. This study's results align with research conducted in Ghana, which explains that public health promotion media positively impacts contraceptive use in women [40]. The study is also supported by the results of other studies, which demonstrate that a woman who watches television will often be exposed to various information, including health information relating to contraceptive methods, to support the improvement of the quality of life of women [40], [41]. Another study also revealed that women who accessed information about family planning from television had a 1.29 chance to use modern contraceptives [42].

This study found that internet use has a partial effect on contraceptive use. A study conducted in Thailand found similar results. This study's results inform the behavior of women who frequently use the internet to access information about contraceptive methods.[34] The internet is a medium that has developed very progressively recently because it can penetrate regional and geographic barriers [43].

This paper is novel because it seeks to

contribute to the current debate in the literature on contraceptive use. The scientific novelty of the article also consists of a conducted large-scale study describing the author's theoretical and practical prerequisites in the reproductive health field.

## V. CONCLUSION

It concluded that the types of media exposure that can predict contraceptive use in women of childbearing age in Indonesia are the frequency of reading newspapers, watching television, and using the internet. The frequency of watching television has the most decisive influence on contraceptive use. Other proven predictors of contraceptive use among childbearing-age women in Indonesia are age, parity, education level, employment status, marital status, and wealth status.

Moreover, based on the results, we recommend expanding the scope of the study to more specific media exposure. Studies may be conducted on a particular radio or television programs. Additionally, you can also consider studies that examine prime-time media exposure.

### A. Suggestion for Practical Use

Although the development of the internet is unstoppable, the role of television has proven to be the most effective. This situation is possible because television is more reliable than internet media, which has a much looser information filter. This condition needs to be a concern for family planning practitioners, and the government does not abandon television as a medium for disseminating information about contraceptive methods.

## ACKNOWLEDGMENT

The author wants to thank ICF International, which has agreed to analyze the 2017 IDHS data in this article.

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