

Changes in Determinants and Equity of Family Planning Utilization after the Implementation of a National Health Insurance Policy in Indonesia: A Secondary Analysis of The 2012-2016 National Socio-Economic Survey of Indonesia

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Abstract

Background The Indonesian government has been implementing the National Health Insurance Policy (Jaminan Kesehatan Nasional-JKN) since 2014. The utilization of family planning service is one of the programs to increase maternal and child health status that is included in the benefit package in JKN. This study aimed to describe determinants and to evaluate JKN based on equity indicators, especially in family planning services. **Methods** Data were obtained from the 2012-2016 National Socio-Economic Survey (SUSENAS) of Indonesia. Contraceptive Prevalence Rate (CPR) and Long-acting contraceptives (LACs) use were used as indicators to evaluate family planning utilization. Chi-square and logistic regression tests were used to analyze the data. Respondents were married women between 15 and 49 years of age. **Results** There was no progress in CPR after the implementation of JKN. At the national level, CPR decreased within five years (2012-2016). Decreasing in urban areas and in the group that does not have health insurance were more than in rural areas and in the group that has health insurance. Utilization of non-LACs, especially injection (56%-57%) and pill (21%-24%), were still high within 2012-2016. At the national level, LACs use increased 3.18% between 2012-2016 (15.54%-18.72%). Increasing in urban areas and in the group that has subsidized health insurance were more than in rural areas and in the group that does not have subsidized. Health insurance ownership, the geography factor, education, household economic correlated with contraceptive use ($p < 0.05$) in 2015 and 2016, but this correlation was inversely proportional. Conversely, all of the determinants were positively associated with LACs use ($p < 0.05$). **Conclusions** Up to 2016, the JKN program did not increase CPR. Conversely, the JKN program obtained only small increases in LACs use. LACs use in rural areas is less than in urban areas. JKN program can increase LACs use in the group that has subsidized health insurance. CPR and LACs coverage could be increased by health system improvement and the social approaches, specifically through improving supply-side and regulations, increasing coordination among multiple agencies in the family planning program, and promoting family planning based on values and norms in the society.

Background

In 2015, the Maternal Mortality Ratio (MMR) in Indonesia was reported 305 per 100,000 live births, while Infant Mortality Rate (IMR) was reported 22.23 per 1000 live births [1]. This achievement is not yet in line with the target of Millennium Development Goals (MDGs). The target of MMR in Indonesia is 110 per 100,000 live births in 2015, while IMR is 19 per 1000 live births [2]. After MDGs finished in 2015, all United Nations Member States adopted the 2030 agendas for sustainable development. To achieve the third goal in Sustainable Development Goals (SDGs) viz. every country reaches MMR less than 70 per 100,000 live births and IMR less than 12 per 1000 live births in 2030 [3], Indonesia has been implementing many programs that are related with maternal and child health.

The family planning program is one of the ways to increase maternal and child health. Ensuring access to contraceptive use contributes to the success of the family planning program. Contraceptive use through reduction of fertility reduces maternal and neonatal mortality [4,5]. Contraceptive use, especially

Long-acting contraceptives (LACs) methods, prevents unintended pregnancy while reducing abortions, as shown by prior research [6].

The success of the family planning programs could be evaluated based on the Contraceptive Prevalence Rate (CPR) and LACs use. Beginning in 1976, when the role of the national population and family planning board (*Badan Koordinasi Keluarga Berencana Nasional*, or BKKBN) was powerful, the family planning program in Indonesia showed significant success. During 1976-2002, CPR increased from 26% to 60%. After 2002, in the decentralization era, CPR increased very slowly and tended to stagnant between 2002-2012. Moreover, CPR tended to decrease after 2012 [1,7–10]. The target of CPR in the 2015-2019 Indonesian national development is 66%, while the target of LACs use is 23.5% [11]. One of the obstacles to accessing family planning programs is finances, especially for the poor. To reduce the financial barrier, the Indonesian government has been implementing a National Health Insurance Policy (*Jaminan Kesehatan Nasional-JKN*) since 2014 [12]. The family planning program is included in the benefit package in JKN [13]. JKN is a social health insurance and compulsory insurance that was implemented gradually to achieve universal coverage in 2019. In early 2014, 49% of the population had insurance coverage. In 2016, 66.46% of the population had insurance coverage. At the end of 2019, all Indonesian people are expected to be protected by health insurance [12–15]

One of the indicators used to assess the success of social health insurance is equity. It is consistent with one of the goals in SDGs, specifically to reduce the health gaps inside a country and between countries. Equity is defined as no number and/or difference of frequency of using health services based on socio-economic status [16]. In meeting this challenge, Indonesia with 34 provinces confronts a wide diversity and divergence in maternal health status and maternal health service utilization.

Evaluation is needed to measure the influence of the JKN policy on utilization and equity progress of the family planning program. Data within five periods (2012-2016) enable us to analyze the progress of equity. Based on the National Socio-Economic Survey (*Survei Sosial Ekonomi Nasional-SUSENAS*) data, we aimed to investigate and describe the progress of utilization and equity in the family planning program and its connections with health insurance ownership, education, household economic status, and geography factor. Findings from this study are expected to provide baseline information for Indonesia policy-makers to improve JKN policy related to the family planning program.

Methods

Study design

In this research, a cross-sectional study was performed based on the national secondary database provided by SUSENAS. SUSENAS is one of the regular surveys conducted by the government of Indonesia through the Central Bureau of Statistics (*Badan Pusat Statistik-BPS*) every year. Data were collected with a questionnaire. The data contain information on the socio-economic conditions of society, including

health conditions, education, fertility, family planning, and housing. SUSENAS surveys include, on average, 300,000 households every year that are spread over 34 provinces and 511 districts/cities in Indonesia. SUSENAS has been conducted since 1979. The sample design of the SUSENAS, which uses probability sampling, allows for the estimation of district-level coverage. Detailed information about the survey and the sampling design with census block allocation are available at <http://microdata.bps.go.id/mikrodata/index.php> (in Bahasa) [17].

Study site

Indonesia, the largest archipelago in the world, consists of five main islands and 13,677 small islands. Until 2014, the number of provinces in Indonesia was 33 provinces. In 2015, Indonesia was divided into 34 provinces and 511 districts/cities. The five main islands in Indonesia are Sumatera, Jawa, Kalimantan, Sulawesi, and Papua. Sumatera, Jawa, Kalimantan are islands in the western areas of Indonesia. Sulawesi, Papua, and some small islands (Nusa Tenggara Timur, Nusa Tenggara Barat, Maluku) are islands in the eastern areas of Indonesia .

Population

Source population

The source population for this study was households that were included in the Indonesian National Socio-Economic Survey Data (SUSENAS) 2012-2016.

Database population

Database population that was taken from SUSENAS 2012-2016 included households that had married woman (15-49).

Study population

The study population included the married woman (15-49).

Sample size

A national representative sample of 200,367 (2012), 195,040 (2013), 195,607 (2014), 193,245 (2015), 191,490 (2016) married woman (15-49) were selected for this study.

Variables and definitions

Independent variables were health insurance ownership, education, household economic status, and geography factor. Dependent variables were contraceptive use and LACs use by participants. Contraceptive use accumulation obtained CPR and LACs use. Definition of CPR is the percentage of women aged 15–49 years, married, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used. While, the definition of LACs use is the percentage of women aged 15-49 years, married, who are currently using, or whose sexual partner is using, at least one method of LACs methods, i.e. implant, intrauterine device (IUD), vasectomy, and tubal ligation. We created dichotomous variables for all categories using binary numbers. In the contraceptive use variable, we used 1 for not a contraceptive user and 0 for a contraceptive user. In LACs use, we used 1 for not a LACs user and 0 for LACs user. Health insurance ownership was scored as 1 for not having health insurance and 0 for having health insurance. The geography factor was scored as 1 for household location in a rural area and 0 for household location in an urban area. Education was scored as 1 for illiterate-middle and 0 for high secondary or above. Household socio-economic status was measured using household expenditures, with 1 representing 50% of the lowest and 0 representing >50% of the highest.

Statistical analysis

The analysis was done using Stata version 13.1. The analysis was performed with chi-square (X^2) test for categorical variables. The association between dependent and independent variables was measured using the odds ratio (OR), for which the 95% confidence interval (CI) was calculated. Variables were determined to be statistically significant if the result indicated $p < 0.05$. Variables that showed a statistically significant association ($p < 0.25$) at the bivariable level were further analyzed at the multivariable level by logistic regression.

Ethics

The raw data of SUSENAS 2012-2016 were used for this study with permission from the Central Bureau of Statistics (BPS). Informed consent was obtained from all study participants by the BPS.

Results

Descriptive statistics

The achievement in CPR during 2012-2016 has shown variation in every province. CPR in the eastern areas of Indonesia, especially Nusa Tenggara Timur, Papua Barat, Maluku, and Papua was less than in the western areas. After the implementation of JKN in 2014, this situation did not change. In general,

almost all of the provinces decreased in CPR. At the national level, CPR decreased as much as 2.41%. (See Table 1).

The data showed that CPR declined every year (2012-2016) in all of the regions. The decline in urban areas was more than in rural areas between 2012-2016. The decline in the group that did not have health insurance was more than in the group that did. The decline in the non-subsidized health insurance group or the rich group was more than in the subsidized health insurance group or the poor group. In 2013, there was an increase in contraceptive use in the subsidized health insurance group. Preference of non-LACs methods was more common than LACs methods. While there was only a small increase in LACs use during 2012-2016, preference of contraceptive methods was still dominated by the pill and injection. (See Table 2)

On the contrary, the achievement in LACs use during 2012-2016 has shown an increase in every province except Sulawesi Tenggara. Bali had the highest LACs use within the five years. The highest growth was in Papua. At the national level, LACs use increased as much as 3.18% during 2012-2016. There was a rising trend after the implementation of JKN in 2014. (See Table 4)

LACs use in the eastern areas of Indonesia, and especially the Nusa-Maluku-Papua region indicated a rising trend during 2012-2016. LACs use in urban areas increased more than in rural areas during 2012-2016. LACs use in the group that has health insurance was more than in the group that did not. LACs use in the subsidized health insurance group showed a rising trend after the implementation of JKN in 2014. (See Table 5)

Bivariable Analysis

At the national level, in 2012, a significant correlation between health insurance ownership and contraceptive use was found, but this correlation was inversely proportional. On the contrary, in 2013, its correlation was directly proportional. In 2014, the first year of JKN, the result showed no correlation. Moreover, in 2015 and 2016, the result showed some correlation, but it was inversely proportional. At the provincial level, not all of the provinces indicated a positive significant result. In 2016, positive significant result was found in only nine of the 34 provinces. On the contrary, at the national level, a positive significant correlation was found between health insurance ownership and LACs use in every year (2012-2016). At the provincial level, the result showed a rising trend in the number of provinces that indicated the positive significant result after the implementation of JKN. (See Table 3&6)

Chi-square analysis indicated some factors that significantly correlated with contraceptive use. Only in 2013, health insurance ownership exhibited a positive influence on contraceptive use. In 2014, the first year of the JKN policy, there was no influence between health insurance ownership and contraceptive use. Furthermore, there was an inversely proportional correlation in 2015 and 2016. Participants who did not have health insurance were more likely to use contraceptive than those who did have health insurance. The education factor and household economic status exhibited influence on contraceptive use

within 2012-2016, but it was inversely proportional. Participants with illiterate or middle education had a greater probability of using contraceptives than those with high secondary education levels or higher. More than half of the households that had the lowest expenses had a higher likelihood of using contraceptives than 50% of households that had the highest expenses. The geography factor influenced contraceptive use after the implementation of JKN, but it was inversely proportional. Households located in rural areas had an even higher probability of using contraceptives than did households located in urban areas. (See Table 7)

Chi-square analysis indicated some factors that were significantly correlated to LACs use. Health insurance ownership, education, household economy, and geography factor exhibited a positive influence on LACs use within 2012-2016. This influence was stable during 2012-2016. Participants who have health insurance were more likely to use LACs methods than the group that did not have health insurance. Participants with high secondary or above education were more likely to use LACs methods than those in the illiterate or middle education level. More than half of participants who had the highest expense were more likely to use LACs methods than 50% of households that had the lowest expenses. Households located in urban areas were more likely to use LACs methods than households located in rural areas. (See Table 8)

Multivariable Analysis

The influence of health insurance ownership on contraceptive use decreased after the implementation of JKN. The influence of education and household economic status as the dominant factors on contraceptive use were inversely proportional and their influence tended to be stable during 2012-2016. The influence of the geography factor on contraceptive use exhibited a trend to decrease between 2012-2016. (See Table 9)

The influence of health insurance ownership, education, household economic status, and geography factor on LACs increased after the implementation of JKN. Compared to the other factors, household economic status had the lowest contribution between 2012-2016. The education factor as the highest contribution became the dominant factor to influence LACs use between 2012-2016. (See Table 10)

Discussion

The influence of health insurance ownership, socio-economic status, and geography factor, on contraceptive use and LACs use, indicated some contrary results. JKN policy did not increase contraceptive use in married women between 15 and 49 years of age, but JKN policy could increase LACs use. An inversely proportional correlation between socio-economic status and contraceptive use was found, while in LACs use was directly proportional. There was a tendency to increase contraceptive use by married women between 15 and 49 years of age in rural areas after the implementation of JKN. On the contrary, LACs use increased more in urban areas than in rural areas after the implementation of JKN.

The results of this research showed that JKN did not increase CPR at the national level, and it also did not increase equity in family planning use among regions, especially the eastern areas of Indonesia.

This research had some limitations, which need to be considered when interpreting the results. First, not all of the variables that should be considered exist in the secondary data. Some variables that could have influenced CPR and LACs use are not available in SUSENAS data, such as availability of health facilities and contraceptives, and the distance of health facilities from the locality of residence. We only identified four determinants that contribute to contraceptive use or CPR and LACs use. Second, we only used a before-after approach with a cross-sectional design to measure equity of family planning utilization. This is one of the standard methods used in health impact assessment. Third, this study only measured equity in utilization of contraceptive use and LACs use. Equity in health financing could not be measured because of data limitations.

Even though our study has some limitations, quantitative analysis was able to be conducted in every province by using large samples. Thus, the result for every province may be generalized. Data with large samples in 2012-2016 were able to measure the change of equity every year and the change of socio-economic determinants and the geography factor that influence contraceptive use or CPR and LACs use.

One of the objectives of the national health insurance implementation is to ensure all people get access to health services. Reducing the financial barriers to access health services will increase health services utilization. In fact, JKN has not increased contraceptive use that is included in the benefit package in JKN. Moreover, there was a decreasing trend of contraceptive use in married women between 15 and 49 years of age who have health insurance after the implementation of JKN. Research by Teplitskaya et al. supports this finding [7]. After 2002, CPR tended to decrease in the decentralization era because of the reduction in funding of family planning and the diminishing role of BKKBN as the leading service provider [10]. This problem continues to occur after the implementation of JKN since there are now multiple agencies that have a role in the family planning program, i.e. BKKBN, the Ministry of Health (MOH), the National Health Insurance Agency (*Badan Pelaksanan Jaminan Sosial-Kesehatan or BPJS-K*), while the local governments have a lack of coordination. In other words, there is fragmentation among multiple agencies [18].

The central and local governments provide drugs and contraception, while BKKBN has the role in fulfilling and distributing it in health service centers. BPJS finances the tariff of family planning services in health service centers based on the laws of the Indonesian Health Ministry [12,13,19–21]. Besides the lack of coordination among multiple agencies, the reducing trend of CPR after the implementation of JKN can occur because of the weak regulations. Some regulations related to family planning programs in JKN must be evaluated, viz. non-capitation tariff for IUD and sterilization is assumed too low, no limitation to births, no claim for IUD in hospital, and no guarantee for sterilization after delivery [22]. When the government implemented childbirth insurance, called *Jaminan Persalinan-Jampersal*, in 2011, there were some provisions to encourage the participants enrolled in *Jampersal* to join in post-partum family planning. This law did not continue in the JKN era [23].

JKN policy did not increase equity in contraceptive use among regions. The achievement of CPR in the eastern areas of Indonesia was still lower than in the western areas of Indonesia, but LACs coverage in the eastern areas of Indonesia increased more than in the western areas of Indonesia. The new policy that encourages LACs use coverage in the eastern of Indonesia can be a solution to increase CPR in the eastern areas of Indonesia. To achieve it, the government must strengthen the quality and equitable distribution of the supply side. Gaps in infrastructure, health facilities, and health workers between the western and eastern areas of Indonesia have already been observed in the first year of the implementation of JKN [18]. This problem continued to occur after the implementation of JKN.

Some countries that had implemented maternal health insurance for deliveries and mothers' postpartum care through universal health coverage agenda showed different results. Mauritania had implemented the obstetrical risk insurance scheme (ORI) in 2002, but the effects of the ORI exhibited decreasing use of family planning [24]. The implementation of universal health coverage (UHC) in Latin America showed m-CPR has continued to increase in the majority of Latin America Countries, but disparities remain, especially for marginalized groups [25]. The implementation of Affordable Care Act (ACA) mandate in United States (US) that also required contraceptives package in private health insurance indicated significant results to increase contraceptive and Long Acting Reversible Contraceptives (LARCs) use, to decrease the births, to reduce the proportion of births from unwanted pregnancies, and to reduce an inequality among insured women [6,26–35].

Not only health insurance ownership but also socio-economic status and the geography factor contributed to contraceptive use. Education and household economic status showed a significant result, but the association was inversely proportional. It means the higher education and household economic status the less contraceptive use. These results contrast with the prior research that used the 2002-2003 and 2007 of Indonesia Demographic and Health Survey (IDHS) Indonesia and some other studies. The 2002-2003 and 2007 of IDHS indicated that better off and educated women were more likely to use family planning than were the poor and uneducated women [9,10]. The conflicting results in two periods, between 2002-2007 and 2012-2016, indicated that there is a significant transformation in the society. We assumed that there is a shift of values in the society in Indonesia, but this assumption must be proved through further qualitative research. The same results were shown by studies in Bangladesh and Cameroon [36–38], but the studies in North Ethiopia and Malawi showed that education contributes significantly to contraceptive use [39,40]. Although the association between the geography factor and contraceptive use showed a significant result, the gap in contraceptive use between urban and rural areas decreased after the implementation of JKN. Moreover, in 2016, the result showed that married women in rural areas were more likely to contraceptive use than were married women in urban areas. In other words, JKN contributed to decreasing inequity in contraceptive use between urban and rural areas, but an inequity gap between provinces in the western areas and in the eastern areas of Indonesia has remained.

On the contrary with determinants of contraceptive use, the influence of health insurance ownership, socio-economic status, and geography factor, on LACs use indicated significant results, which were directly proportional. JKN policy could increase LACs use in married women between 15 and 49 years of

age, especially in the group who has subsidized health insurance and in the Nusa-Maluku-Papua region, but an inequity has remained between urban and rural areas. Most studies indicated that health insurance has made a significant contribution to increase LACs use [6,26–30,32–35,41–46]. The contribution of LACs use in the success of the family planning program is very crucial, but until 2016, LACs use coverage in Indonesia was only 18.72%. To increase contraceptive use, especially LACs use, the Indonesian government must evaluate the prior policies related to family planning policies.

Health system improvement related to family planning programs must be prioritized. Some specific actions must be done. First, the government must strengthen the quality and equitable distribution of the supply side for the family planning program, especially in the rural and the eastern areas of Indonesia. Second, strengthening of the role and coordination among multiple agencies in the family planning program must be implemented. Third, improving regulations is needed related to family planning programs in JKN, for example, increasing of non-capitation tariff for IUD and sterilization; providing of IUD service in hospital; and encouraging of family planning after post-partum. Some studies had also suggested increasing family planning among post-partum women [47,48]. Besides improving the health system, the shift of values in the Indonesian society that encourages acceptance of family planning must be evaluated. The social approaches based on values and norms in the society are needed to increase contraceptive use, especially LACs use.

To ensure that the married women between 15 and 49 years of age who are covered by National Health Insurance (NHI) get the optimal services of family planning, the supply-side of family planning programs, ability to manage by multiple agencies in family planning programs, and the regulations related to family planning in NHI must be properly prepared before and during the implementation of NHI. Every kind of health service that is included in the NHI package has a unique problem in its implementation, and as a result, every health service must have appropriate regulations that are suitable to overcome the problem.

Conclusions

NHI, called JKN, that has been implemented in Indonesia since 2014 did not increase contraceptive use or CPR. Instead, contraceptive use had a decreasing trend after the implementation of JKN. There were significant correlations of health insurance ownership, socio-economic status, and the geography factor with contraceptive use, but the association was inversely proportional. On the contrary, JKN could increase LACs use, although only slightly, while there was significant association of all determinants with LACs use which was directly proportional.

Health system improvements and implementation of innovative social approaches provide some solutions to increase both contraceptive use and LACs use. Integrating health system improvements through the strengthening of supply-side, coordinating multiple agencies in family planning program, and enacting effective regulations and policies are needed. The success of the family planning

implementation in Indonesian society cannot be separated with values and norms in society, so the social approaches must become one of the policies for the success of family planning programs.

Abbreviations

NHI: National health insurance; MMR: Maternal mortality ratio; IDHS: Indonesia Demographic health survey; SUSENAS: Survei sosial ekonomi nasional; JKN: Jaminan Kesehatan Nasional; BPS: Badan Pusat Statistik; LACs: Long-Acting Contraceptives; CPR: Contraceptive Prevalence Rate; IUD: Intra-Uterine Device.

Declarations

Ethics approval and consent to participate

We used the secondary data. The raw data of SUSENAS 2012-2016 were used for this study with permission from the Indonesian Central Bureau of Statistics (*Biro Pusat Statistik*-BPS). Informed consent was obtained from all study participants by BPS. Participants were married women between 15 and 49 years of age. The Medical and Health Research Ethics Committee (MHREC) Faculty of Medicine Gadjah Mada University, Indonesia states that documents (the research protocol) do not need approval letter of The Medical and Health Research Ethics Committee (MHREC) (Ref : KE/FK/1151/EC/2017).

Consent for publication

Not applicable

Availability of data and material

The data that support the findings of this study are available from the Indonesian Central Bureau of Statistics (BPS) but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of the Central Bureau of Statistics (BPS).

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

SKN and LT conceptualized the study. SKN prepared the first draft of the manuscript. SKN acquired the raw data for analysis. YM played a major role in structuring arguments and smoothing out the text. LT contributed to conceptualizing and conceived the idea for the paper. All authors read and approved the final manuscript.

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Tables

Table 1. Percentage of contraceptive use in married woman between 15 and 49 years of age

Province	2012	2013	2014	2015	2016	2012-2016
Bangka Belitung	67.5	69.69	66.98	67.03	69.53	2.03
Kalimantan Selatan	69.92	69.36	70.12	70.55	69.38	-0.54
Lampung	67.86	69.22	68.38	67.8	69.29	1.43
Sumatera Selatan	68.89	68.69	68.06	69.35	68.95	0.06
Bengkulu	70.34	71.39	70.38	69.2	68.71	-1.63
Kalimantan Tengah	70.9	72.61	71.81	69.19	66.3	-4.6
Kalimantan Barat	69.11	67.45	68.74	65.91	66.04	-3.07
Sulawesi Utara	69.59	66.42	67.92	67.96	65.92	-3.67
Jambi	68.69	68.75	68.2	65.11	65.03	-3.66
Jawa Timur	65.97	66.02	65.64	64.26	64.5	-1.47
Gorontalo	65.24	65.76	67.17	66.78	63.2	-2.04
Bali	66.68	65.45	66.49	62.23	63.18	-3.5
Nusa Tenggara Barat	63.99	64.67	63.81	64.4	62.86	-1.13
Jawa Barat	65.76	64.81	64.62	64.16	61.3	-4.46
Jawa Tengah	64.84	64.41	63.65	62.11	61.05	-3.79
Banten	62.23	61.27	61.81	60.65	59.97	-2.26
Sulawesi Tengah	62.17	61.33	62.01	60.05	58.81	-3.36
DI Yogyakarta	59.75	62.18	60.18	59.89	57.96	-1.79
Riau	57.78	58.58	57	54.59	55.97	-1.81
Kalimantan Timur	61.86	61.8	59.52	57.47	55.41	-6.45
Kepulauan Riau	57.93	55.99	54.45	55.15	54.13	-3.8
DKI Jakarta	59.21	58.78	56.38	56.09	53.15	-6.06
Sulawesi Tenggara	52.22	54.04	53.54	49.28	52.66	0.44
Sulawesi Barat	53.1	50.19	50.3	49.75	51.82	-1.28
Maluku Utara	53.22	51.95	52.67	49.6	51.7	-1.52
Sumatera Barat	53.02	52.49	53.3	50.63	51.28	-1.74
Sulawesi Selatan	52.89	52.86	53.38	50.06	50.06	-2.83
Aceh	53.02	52.74	52.38	46.53	49.45	-3.57
Sumatera Utara	48.18	48.71	48.22	45.78	45.81	-2.37
Nusa Tenggara Timur	40.55	43.57	44.24	40.33	43.7	3.15
Papua Barat	40.5	40.47	41.11	38.73	41.56	1.06
Maluku	37.2	38.11	39.7	39.54	36.87	-0.33
Papua	25.32	23.54	25.83	22.17	22.76	-2.56
Total	59.44	59.19	59.02	57.39	57.03	-2.41

Table 2. Percentage of contraceptive use based on region, urban-rural, health insurance ownership, and the types of contraceptive methods

	2012	2013	2014	2015	2016
Geography (region)					
Sumatera	59.27	59.66	58.95	56.96	57.65
Jawa-Bali	64.88	64.47	64.04	62.75	61.67
Kalimantan	67.94	67.79	67.58	65.81	64.35
Sulawesi	58.34	57.77	58.37	56.1	55.89
Nusa-Maluku-Papua	40.71	40.51	41.42	39.64	40.24
Geography (urban-rural)					
Urban	59.75	59.39	58.66	56.19	55.32
Rural	59.21	59.05	59.28	58.25	58.25
Health insurance ownership					
Have health insurance	58.62	59.66	58.9	56.58	56.5
No health insurance	60.12	58.66	59.17	58.42	57.83
Health insurance ownership					
Subsidized health insurance	58.13	60.49	59.97	57.89	57.34
Non-subsidized health insurance	59.07	58.13	57.02	54.47	55.62
No health insurance	60.12	58.66	59.17	58.42	57.83
Contraceptive Methods					
Tubal ligation	2.51	2.78	2.89	3.2	3.67
Vasectomy	0.44	0.52	0.55	0.26	0.29
IUD	5.93	5.96	6.16	6.6	6.66
Injection	57.38	57.31	56.65	57.32	55.99
Implant KB/norplan/implanon/alwalit	6.66	6.69	7.13	7.62	8.1
Pill	23.94	23.41	22.95	21.82	21.59
Condom for male	0.82	0.83	0.87	0.99	1.13
Intravag/tissue	0.04	0.03	0.04	0.08	0.08
Condom for female	0.08	0.05	0.06		
Traditional methods	2.2	2.41	2.7	2.1	2.5

IUD: intrauterine device

Table 3. Bivariable analysis of health insurance ownership and utilization of

Family Planning

Province	2012	2013	2014	2015	2016
Aceh	0.256	0.970	0.267	0.888	0.627
Sumatera Utara	0.062	<0.001*	0.006*	0.808	<0.001*
Sumatera Barat	0.489	0.144	0.849	0.002**	0.583
Riau	0.853	0.457	0.144	0.521	0.074
Jambi	0.975	0.578	0.246	<0.001**	0.057
Sumatera Selatan	0.001**	0.141	0.207	0.055	0.046*
Bengkulu	0.086	0.008*	0.585	0.309	<0.001**
Lampung	<0.001**	0.473	0.216	0.031**	0.468
Bangka Belitung	0.751	0.159	0.056	0.077	0.195
Kepulauan Riau	0.052	0.002*	0.196	0.931	0.256
DKI Jakarta	0.006**	0.950	0.309	0.866	0.462
Jawa Barat	0.038*	0.051	0.512	0.209	0.746
Jawa Tengah	0.615	0.003*	0.011*	0.967	0.860
DI Yogyakarta	0.024*	0.456	0.095	0.063	0.172
Jawa Timur	0.923	<0.001*	0.019*	0.007*	0.878
Banten	0.640	0.549	0.635	0.735	0.394
Bali	0.030*	0.001*	0.119	0.001*	0.045*
Nusa Tenggara Barat	0.129	0.372	0.002*	0.266	0.153
Nusa Tenggara Timur	0.059	0.065	0.008*	<0.001*	0.008*
Kalimantan Barat	0.959	0.950	0.588	0.543	0.180
Kalimantan Tengah	0.053	0.007*	0.958	0.003**	0.245
Kalimantan Selatan	0.728	0.416	0.739	0.206	0.006*
Kalimantan Timur	0.755	0.027*	0.004*	0.508	0.844
Sulawesi Utara	0.020**	0.169	0.018	0.413	0.189
Sulawesi Tengah	0.949	0.001*	0.001	0.503	0.043*
Sulawesi Selatan	0.491	0.013*	0.836	0.754	0.995
Sulawesi Tenggara	0.065	0.004*	0.461	0.002*	0.013*
Gorontalo	0.169	0.088	0.858	0.917	0.421
Sulawesi Barat	0.509	0.919	0.205	0.928	0.673
Maluku	0.143	0.391	0.512	0.507	0.938
Maluku Utara	0.131	0.001*	0.022*	0.014*	0.053
Papua Barat	0.069	0.002*	0.101	<0.001*	0.002*
Papua	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Indonesia	<0.001**	<0.001*	0.235	<0.001**	<0.001**

*Significant positive ($p<0.05$), directly proportional

**Significant negative ($p<0.05$), inversely proportional

Table 4. Percentage of LACs use in married woman between 15 and 49 years of age

Province	2012	2013	2014	2015	2016	2012-2016
Bali	39.59	36.38	37.62	39.84	39.89	0.3
Nusa Tenggara Timur	28.56	29.47	32.65	34.4	36.08	7.52
DI Yogyakarta	33.81	33.12	35.96	37.74	35.91	2.1
Gorontalo	30.79	29.38	30.68	32.49	32.01	1.22
Sumatera Barat	21.39	24.39	24.14	25.63	28.22	6.83
Sulawesi Utara	23.73	23.52	26.48	26.43	27.03	3.3
Jawa Tengah	21.24	22.54	22.94	24.06	24.87	3.63
Sumatera Utara	19.61	19.71	20.58	22.68	24.72	5.11
DKI Jakarta	19.09	21.71	21.94	24.82	24.32	5.23
Nusa Tenggara Barat	20.11	19.15	20.15	19.95	22.68	2.57
Jawa Timur	18.13	18.42	19.33	19.42	19.79	1.66
Bengkulu	17.31	17.55	17.92	19.57	19.2	1.89
Maluku Utara	12.54	16	16.21	13.62	18.9	6.36
Sumatera Selatan	11.57	11.44	13.46	14.79	17.51	5.94
Papua	9.58	9.63	9.66	11.73	17.16	7.58
Jawa Barat	15.32	14.64	14.81	17.23	16.86	1.54
Kepulauan Riau	11.35	14.45	12.33	13.08	15.35	4
Sulawesi Tenggara	14.71	14.96	15.96	12.74	14.54	-0.17
Sulawesi Tengah	10.67	13.51	14.91	13.42	14.53	3.86
Banten	11.01	12.16	11.73	12.13	14.36	3.35
Sulawesi Selatan	10.35	9.51	11.21	12.24	14.29	3.94
Maluku	12	13.44	13.48	16.02	14.05	2.05
Lampung	10.57	12.26	11.75	13.5	13.96	3.39
Kalimantan Timur	11.32	11.5	12.58	13.32	13.75	2.43
Riau	9.14	10.37	11.87	11.39	13.73	4.59
Papua Barat	6.88	8.94	10.08	11.27	12.66	5.78
Jambi	10.98	11.06	10.16	11.75	12.58	1.6
Sulawesi Barat	10.96	9.43	11.73	13.18	11.96	1
Aceh	5.82	5.9	6.75	8.43	9.65	3.83
Bangka Belitung	7.44	8.06	8.37	10.54	9.49	2.05
Kalimantan Tengah	6.38	6.13	6.51	7.02	8.98	2.6
Kalimantan Barat	6.39	6.94	8.38	7.01	8.78	2.39
Kalimantan Selatan	7.04	6.7	6.7	7.23	7.33	0.29
Total	15.54	15.95	16.72	17.67	18.72	3.18

Table 5. Percentage of Long Acting Contraceptives use based on region, urban-rural, health insurance ownership

	2012	2013	2014	2015	2016
Geography (region)					
Sumatera	13.04	13.83	14.32	15.8	17.2
Jawa-Bali	19.57	19.87	20.4	21.62	21.98
Kalimantan	7.67	7.68	8.37	8.52	9.59
Sulawesi	15.84	15.8	17.61	17.59	18.43
Nusa-Maluku-Papua	17.22	18.2	19.24	20.01	22.83
Geography (urban-rural)					
Urban	18.47	19	19.92	21.4	22.33
Rural	13.39	13.77	14.49	15.07	16.27
Health insurance ownership					
Have health insurance	18.32	17.63	18.56	19.93	20.92
No health insurance	13.29	14.02	14.55	14.86	15.47
Health insurance ownership					
Subsidized health insurance	15.34	15.55	16.28	17.3	19.09
Non-subsidized health insurance	21.03	21.63	22.78	24.42	22.93
No health insurance	13.29	14.02	14.55	14.86	15.47

Table 6. Bivariable analysis of health insurance ownership and utilization of Long Acting Contraceptives

Province	2012	2013	2014	2015	2016
Aceh	0.001*	0.089	0.487	0.561	0.939
Sumatera Utara	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Sumatera Barat	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Riau	<0.001*	<0.001*	0.088	<0.001*	<0.001*
Jambi	<0.001*	<0.001*	0.007*	<0.001*	<0.001*
Sumatera Selatan	0.107	0.710	0.301	0.151	0.232
Bengkulu	0.350	0.236	<0.001*	0.002*	0.091
Lampung	0.093	0.954	0.266	<0.001*	0.027*
Bangka Belitung	0.033*	0.414	0.558	0.639	0.003*
Kepulauan Riau	0.974	0.752	0.591	0.031*	0.005*
DKI Jakarta	<0.001*	<0.001*	0.067	0.007*	0.002*
Jawa Barat	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Jawa Tengah	<0.001*	0.477	0.009*	<0.001*	<0.001*
DI Yogyakarta	0.210	0.851	0.152	0.275	0.056
Jawa Timur	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Banten	<0.001*	<0.001*	0.006*	<0.001*	<0.001*
Bali	0.003*	0.002*	<0.001*	0.002*	0.006*
Nusa Tenggara Barat	<0.001*	0.019*	0.030*	0.027*	0.007*
Nusa Tenggara Timur	0.430	0.229	0.036*	<0.001*	<0.001*
Kalimantan Barat	<0.001*	0.926	<0.001*	<0.001*	<0.001*
Kalimantan Tengah	0.046*	0.001*	0.002*	<0.001*	<0.001*
Kalimantan Selatan	<0.001*	<0.001*	0.001*	<0.001*	0.783
Kalimantan Timur	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Sulawesi Utara	0.540	0.004*	0.001*	0.012*	0.005*
Sulawesi Tengah	0.058	0.808	0.988	0.242	<0.001*
Sulawesi Selatan	<0.001*	0.005*	0.002*	0.060	0.002*
Sulawesi Tenggara	<0.001*	0.058	0.862	0.446	0.175
Gorontalo	0.365	0.119	0.674	0.422	0.476
Sulawesi Barat	0.401	0.252	0.039**	0.481	0.164
Maluku	0.168	0.056	0.024*	0.900	0.061
Maluku Utara	0.189	0.014*	0.125	<0.001*	0.018*
Papua Barat	0.790	0.868	0.841	0.015*	0.879
Papua	0.021*	<0.001*	<0.001*	0.010*	<0.001*
Indonesia	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*

*Significant positive ($p < 0.05$), directly proportional

**Significant negative ($p < 0.05$), inversely proportional

Table 7. Bivariable Analysis: Determinants of contraceptive use in 2012-2016

Variable	2012 (n=200,367)		2013 (n=195,040)		2014 (n=195,607)		2015 (n=193,245)		2016 (n=191,490)	
	% CPR	OR (95% CI)	% CPR	OR (95% CI)	% CPR	OR (95% CI)	% CPR	OR (95% CI)	% CPR	OR (95% CI)
Health insurance ownership										
No health insurance	60.12	0.93	58.65	1.04	59.16	0.98	58.42	0.92	57.83	0.94
Have health insurance	58.62	(0.92-0.95)*	59.64	(1.02-1.06)*	58.89	(0.97-1.00)	56.58	(0.91-0.94)*	56.50	(0.92-0.96)*
Education										
Illiterate-middle	61.95	0.75	62.08	0.72	61.95	0.72	61.00	0.68	58.99	0.81
High Secondary or above	55.12	(0.74-0.76)*	54.28	(0.71-0.73)*	54.29	(0.71-0.74)*	51.80	(0.67-0.70)*	54.00	(0.80-0.83)*
Household economic status										
50% of lowest	61.68	0.82	61.69	0.81	61.85	0.79	60.37	0.78	60.85	0.73
>50% of highest	57.19	(0.81-0.84)*	56.66	(0.79-0.82)*	56.17	(0.77-0.80)*	54.40	(0.76-0.79)*	53.21	(0.71-0.74)*
Geography Factor										
Rural	59.21	1.02	59.04	1.01	59.27	0.97	58.25	0.91	58.25	0.88
Urban	59.75	(1.00-1.04)*	59.37	(0.99-1.03)	58.64	(0.95-0.99)*	56.19	(0.90-0.93)*	55.32	(0.87-0.90)*

*Significant $p < 0.05$; CI: Confidence Interval; CPR: Contraception Prevalence Rate; OR: Odds Ratio

Table 8. Bivariable Analysis: Determinants of Long Acting Contraceptives use in 2012-2016

Variable	2012 (n=119,096)		2013 (n=115,450)		2014 (n=115,454)		2015 (n=110,894)		2016 (n=109,207)	
	%	OR								
	LACs (95% CI)		LACs (95% CI)		LACs (95% CI)		LACs (95% CI)		LACs (95% CI)	
Health insurance ownership										
No health insurance	13.29	1.46	14.02	1.31	14.55	1.33	14.86	1.42	15.47	1.44
Have health insurance	18.32	(1.41-1.51)*	17.63	(1.27-1.35)*	18.56	(1.29-1.38)*	19.93	(1.38-1.47)*	20.92	(1.40-1.49)*
Education										
Illiterate-middle	13.24	1.63	13.45	1.68	14.40	1.57	14.96	1.65	15.89	1.62
High Secondary or above	20.00	(1.58-1.69)*	20.77	(1.63-1.74)*	20.98	(1.52-1.62)*	22.60	(1.60-1.71)*	23.50	(1.57-1.67)*
Household economic status										
50% of lowest	14.04	1.26	14.22	1.30	15.28	1.24	16.07	1.26	17.07	1.26
>50% of highest	17.15	(1.22-1.30)*	17.84	(1.26-1.35)*	18.31	(1.20-1.28)*	19.45	(1.22-1.30)*	20.61	(1.22-1.30)*
Geography Factor										
Rural	13.39	1.46	13.77	1.46	14.49	1.46	15.07	1.53	16.27	1.47
Urban	18.47	(1.41-1.51)*	19.00	(1.42-1.51)*	19.92	(1.42-1.51)*	21.40	(1.48-1.58)*	22.33	(1.43-1.52)*

*Significant $p < 0.05$; CI: Confidence Interval; LACs: Long Acting Contraceptives; OR: Odds Ratio

Table 9. Multivariable Analysis: Logistic Regression Determinants of contraceptive use in 2012-2016

Variable	2012				2013			
	Coefficient	OR	<i>p</i>	CI 95%	Coefficient	OR	<i>p</i>	CI 95%
Health insurance ownership	-0.019	0.98	0.031	(0.96-0.99)	0.047	1.04	<0.001	(1.03-1.06)
Education	-0.272	0.76	<0.001	(0.74-0.77)	-0.313	0.73	<0.001	(0.71-0.74)
Household economic status	-0.147	0.86	<0.001	(0.84-0.87)	-0.161	0.85	<0.001	(0.83-0.86)
Geography Factor	0.127	1.13	<0.001	(1.11-1.15)	0.123	1.13	<0.001	(1.10-1.15)
Constant	-0.201				-0.191			
Variable	2014				2015			
	Coefficient	OR	<i>p</i>	CI 95%	Coefficient	OR	<i>p</i>	CI 95%
Health insurance ownership	>0.05				-0.041	0.95	<0.001	(0.94-0.97)
Education	-0.289	0.74	<0.001	(0.73-0.76)	-0.337	0.71	<0.001	(0.70-0.72)
Household economic status	-0.184	0.83	<0.001	(0.81-0.84)	-0.169	0.84	<0.001	(0.82-0.86)
Geography Factor	0.079	1.08	<0.001	(1.06-1.10)	0.034	1.03	<0.001	(1.01-1.05)
Constant	-0.143				-0.012			
Variable	2016							
	Coefficient	OR	<i>p</i>	CI 95%				
Health insurance ownership	-0.025	0.97	0.007	(0.95-0.99)				
Education	-0.120	0.88	<0.001	(0.86-0.90)				
Household economic status	-0.274	0.75	<0.001	(0.74-0.77)				
Geography Factor	-0.030	0.96	0.002	(0.95-0.98)				
Constant	-0.046							

Significant $p < 0.05$; CI: Confidence Interval; OR: Odds Ratio

Table 10. Multivariable Analysis: Logistic Regression Determinants of Long Acting Contraceptives Use in 2012-2016

Variable	2012			2013				
	Coefficient	OR	<i>p</i>	CI 95%	Coefficient	OR	<i>p</i>	CI 95%
Health insurance ownership	0.301	1.35	<0.001	(1.30-1.39)	0.256	1.29	<0.001	(1.25-1.33)
Education	0.357	1.42	<0.001	(1.38-1.47)	0.412	1.51	<0.001	(1.45-1.56)
Household economic status	0.060	1.06	<0.001	(1.02-1.09)	0.121	1.12	<0.001	(1.09-1.16)
Geography Factor	0.250	1.28	<0.001	(1.24-1.32)	0.256	1.29	<0.001	(1.25-1.33)
Constant	1.147			1.091				
Variable	2014			2015				
	Coefficient	OR	<i>p</i>	CI 95%	Coefficient	OR	<i>p</i>	CI 95%
Health insurance ownership	0.270	1.31	<0.001	(1.26-1.35)	0.308	1.36	<0.001	(1.31-1.40)
Education	0.349	1.41	<0.001	(1.37-1.46)	0.378	1.45	<0.001	(1.41-1.50)
Household economic status	0.087	1.09	<0.001	(1.05-1.12)	0.076	1.07	<0.001	(1.04-1.11)
Geography Factor	0.278	1.32	<0.001	(1.27-1.36)	0.305	1.35	<0.001	(1.31-1.40)
Constant	1.074			0.971				
Variable	2016							
	Coefficient	OR	<i>p</i>	CI 95%				
Health insurance ownership	0.317	1.37	<0.001	(1.32-1.41)				
Education	0.371	1.44	<0.001	(1.40-1.49)				
Household economic status	0.076	1.07	<0.001	(1.04-1.11)				
Geography Factor	0.265	1.30	<0.001	(1.26-1.34)				
Constant	0.938							

Significant $p < 0.05$; CI: Confidence Interval; OR: Odds Ratio

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