



Side Effects and Determinant of the Use of 3-Month Contraceptive Injection

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Abstract

Accepter of contraceptive injection increased from 11.7% to 27.8% since 2010-2013. Contraceptive injection of Depo Medroxy Progesterone Acetate (DMPA) is given every 3 months by intramuscular. The long-term use of 3-month contraceptive injection for more than two years can cause side effects such as menstrual disorders and decreased libido due to accumulation of progesterone hormone in the body that suppressed estrogen effect. This study aimed to analyze the association in long-term use of 3-month contraceptive injection with menstrual disorders and decreased libido in Puskesmas (Primary health care) Puri, Mojokerto Regency in 2016. The study was observational analytics with cross sectional approach with sample 73 contraceptive acceptors. The data were analyzed by using univariate, bivariate and multivariate analysis with logistic regression and multivariate general model. The results showed that the duration of use of 3-month contraceptive injection was significant with side effect of menstrual disorders (PR=0.142; 95%CI: 0.040-0.502) and decreased libido (PR=0.275; 95%CI: 0.100-0.756). Conclusion: menstrual disorders and decreased libido associated with the duration of use of 3-month contraceptive injection.

Introduction

The new paradigm of the National Family Planning program has a vision to realize “Keluarga Berkualitas tahun 2015” (Quality Family in 2015). It emphasizes the importance of respecting reproductive rights, as an integral effort to improve the quality of families with the criteria of prosperous, healthy, independent, with ideal number of children, insightful, responsible, harmonious, and devoted to One Almighty God.

KB (Family Planning) is one of the most basic and primary preventive health services for women. Improvement and expansion of family planning services is one of the act to reduce maternal morbidity and mortality that is high due to pregnancy ([Kemeterian Kesehatan RI, 2015](#)).

Maternal mortality in Indonesia from

1991 to 2007 decreased from 390 to 228 per 100,000 live births. In 2012 it increased significantly to 359 per 100,000 live births with 52.6% of total deaths from six provinces that is North Sumatra, Banten, West Java, Central Java, East Java, and South Sulawesi. Below graphic shows number of maternal deaths in Indonesia from 1991 to 2012 ([Hartanto, 2015](#)).

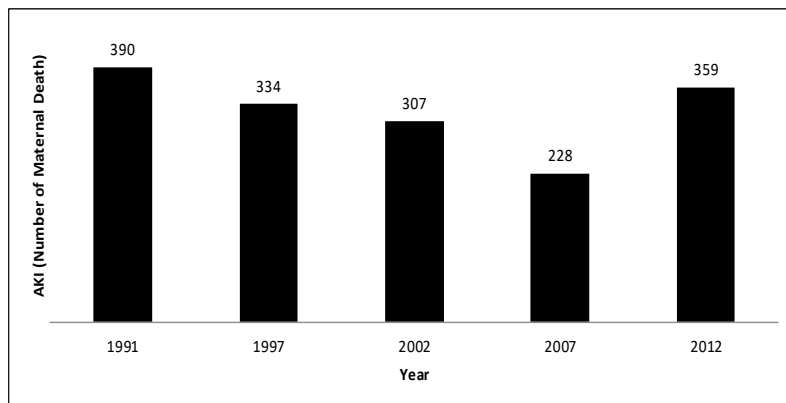
One of maternal health services in attempt to reduce maternal mortality rate is contraceptive service. Government Regulation of the Republic of Indonesia Number 87 Year 2014 About Population Growth and Family Development, Family Planning, and Family Information System states that Family Planning Program is one of the strategy to reduce maternal mortality, especially mother with 4T condition; too young to give birth (under 20 years old), excess birth frequency, small birth

spacing, and too old for pregnancy (over 35 years of age). In addition, the family planning program also aims to improve the quality of families in order to give sense of secure, peace, and hope for a better future to create prosperity in body and happiness in mind ([Kementerian Kesehatan RI, 2015](#)).

Most family planning services in Indonesia are done by private midwives (56.34%). Women of childbearing age (15-49 years) who are married in Indonesia (59.3%) use modern contraceptive and only 0.4% use traditional contraceptive methods. The most common contraception used by active family planning (KB) participants is injections (47.54%) and the second is pill (23.58%). The least contraception used is Male Operation Method (MOP) (0.69%) and the

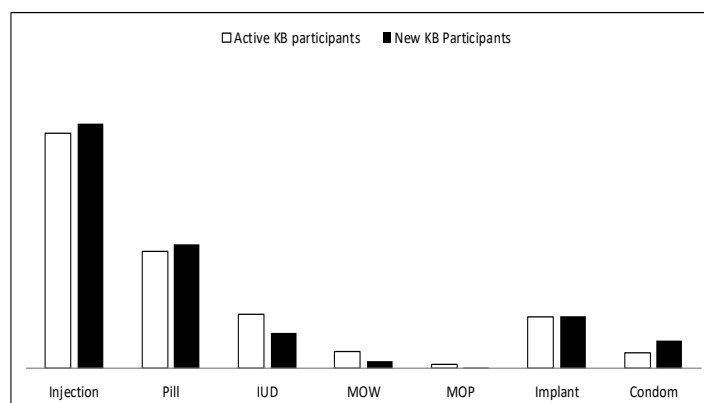
second least is condoms (3.15%). The most common contraceptive method used by new KB participants is injections (49.67%) and the second is pill (25.14%). The least method chosen by the new KB participants is MOP (0.21%), the female operation method MOW (1.50%), and the condom (5.68%). The number of injectable contraceptive acceptors increased from 11.7% in 2010 to 27.8% in 2013. The following is a picture of active and new birth control participants sorted by contraceptive methods, in 2014 ([Kementerian Kesehatan RI, 2015](#)).

The widely used contraceptive is hormonal contraceptive which available in the form of injections. Contraceptive injection method is one of method with high degree of effectiveness, however hormonal contraceptives



Source: Indonesia Health Profile (2014)

Figure 1. Number of maternal death in Indonesia from 1991-2012.



Source: Indonesia Health Profile (2014)

Figure 2. Active and New KB participants by Contraceptive Methods, in 2014

contain a progestin that can affect variably for each woman. Contraceptive injection often leads to temporary menstrual disorders and changes in libido.

This study aims to analyze the effect of long-term use of 3-month contraceptive injection with menstrual disorder and decreased libido at Puskesmas (Community Health Center) Puri of Mojokerto Regency in 2016.

Method

Method of research was observational epidemiological analytic by cross sectional approach. This research was conducted at Puskesmas (primary health care) Puri of Mojokerto Regency. Population consisted of all mothers (new and active acceptors) who used 3-month contraceptive injection in 2014. Data was obtained from Puskesmas in January 2015 with the total of 150 acceptors.

Sample size was 73 people of 3-month contraceptive injection acceptor and determined by simple random sampling technique. Samples taken must met inclusion and exclusion criteria. Inclusion criteria was new or active acceptors, acceptor who came for examination, acceptors that can communicate well (not deaf) and willing to share information. Exclusion criteria included acceptors who drop out or became pregnant and acceptor who were uncooperative in communication.

Dependent variables were menstrual disorders and decreased libido and the independent variables were 3-month contraceptive injection. The instrument used in this study was a questionnaire given to all respondents that already been studied and check list to see the duration of 3-month contraceptive injection by looking at acceptor books and general data by looking at secondary data (KB cohort) from Puskesmas Puri.

Primary data was obtained through interview on acceptors by using questionnaire. Questionnaire collection was done at home visit and at routine 3-month contraceptive injection at puskesmas Puri. Data processed by editing, coding, entering, and tabulating. The data then analyzed in univariate, bivariate and multivariate. Bivariate analysis used logistic regression with p-value <0.05 and prevalence risk (PR) by calculating confidence interval

of 95%. Multivariate analysis was done by multivariate general model.

Result and Discussion

The result of univariate analysis showed that most of respondents used 3-months contraceptive injection for ≥ 2 years (60.3%) and others for <2 years (39.7%). Interviews with respondents who used injections of 3-months contraceptive injections for ≥ 2 years with no intention of adding children states that they did not want to switch to IUD or implants in fear of interfering with the sexual intercourse and not allowed by the spouse.

Respondents who used 3-months contraceptive injection were mostly 20-35 years old (53.4%) and a minority of > 35 years old (15.1%). Respondents of 20-35 years old, 69.2% had been using it for ≥ 2 years and 30.8% < 2 years. Respondents of <20 years old, 60.9% used it for <2 years and respondents of > 35 years old, 72.7% used it for ≥ 2 years. Respondents of <20 years old, used it because they knew that at that age they had to delay pregnancy to prevent any complications in their pregnancies.

Based on education, 46.6% of respondents were only primary school (SD-SMP) graduates and 20.5% of respondents were highly educated (bachelor equivalent). Primary school respondents (61.8%) used 3-months contraceptive injection for ≥ 2 years and 38.2% used it for <2 years. Whereas, 60% of highly educated respondents used it for ≥ 2 years and 40% of them used it for <2 years. By employment status, 68.5% of respondents were unemployed (housewives) and 31.5% of respondents were employed. They had jobs with pays such as teachers, factory workers, private employees, housemaids, farm workers, traders.

Based on the multivariate analysis in Table 1 using logistic regression, factors affecting the duration of use of 3-months contraceptive injection were work and age. Unemployed acceptor had influence the duration of 3-months contraceptive injection by p-value=0.009 and PR=5.332; (95%CI: 1.530-18.577). It means that unemployed acceptors have 5,332 times risk of using it for ≥ 2 years compared to employed acceptor. It also affected by the age, acceptors aged 20-35 years old has p-value=0.020 and PR=9.372; (95%CI:

Table 1. Analysis of Factors Affecting Duration of Use of 3-months Contraceptive Injection at Puskesmas Puri of Mojokerto Regency in 2016

Factors Affecting Duration of Use of 3-months Contraceptive Injection	< 2 Years	≥ 2 Years	Total	OR	95%CI	<i>p value</i>
	N (%)	N (%)	N (%)			
Employment status						
Unemployed	15(51.7)	35(79.5)	50(68.5)	5.332	1.530 - 18.577	0.009
Employed	14(48.3)	9(20.5)	23(31.5)			
Age						
< 20 yo	14(48.3)	9(20.5)	23(31.5)	3.115	0.952 - 10.197	0.060
20 – 35 yo	12(41.4)	27(61.4)	39(53.4)	9.372	1.433 - 61.290	0.020
> 35 yo	3(27.3)	8(18.2)	11(15.1)			
Education						
Primary (SD-SMP)	13(44.8)	21(47.7)	34(46.6)	2.278	0.544 - 9.545	0.260
Middle (SMU)	10(34.5)	14(31.8)	24(32.9)	0.990	0.223 - 4.399	0.990
High (PT)	6(20.7)	9(20.5)	15(20.5)			
Total	40(100)	40(100)	80(100)			

Source: Primary Data

1.433-61.290). It means that acceptors with 20-35 years old have 9.372 times risk of using it >2 years compared to the one with <20 years old.

Side effects experienced by most of respondents were menstrual disorders (78.1%) and the rest reported no menstrual disorder (21.9%). Respondents who experienced menstrual disorders (70.2%) were using 3-months contraceptive injection for ≥ 2 years and others (29.8%) were <2 years. Respondents who did not experience menstrual disorders, 75% of them had used it for <2 years and 25% of the rest had used it for ≥ 2 years. Table 2 shows the bivariate test values with p-value=0.002 and PR=0.142; (95% CI: 0,040-0,502), it means that there is an influence in duration of use of injection of 3-months contraceptive injection to menstrual disorder on acceptor KB. The risk of menstrual disorder in acceptor that use it for < 2 years is 0.142 times compared to the one that use it < 2 years.

The value of R² square was 0.208. It shows that the duration of 3-months contraceptive injection can predict the incidence of menstruation disorder at the acceptor in Puskesmas Puri, Mojokerto by 20.8%, while the rest 79.2% is explained by other risk factor. The results of interviews with respondents showed

that at the start of 3-months contraceptive injection, they had normal menstrual period, on average in the month 3-6 they experienced short menstruation but frequent, occasionally the amount was significant and the duration was getting longer, it stopped shortly then it continued again. Some respondents said after getting the first injection they experienced no menstruation.

Based on the decrease in libido, 65.8% of respondents experienced a significant decrease and 34.2% of them did not experience any. Respondents who experienced it, 70.8% were acceptor for ≥ 2 years and 29.2% were acceptor for <2 years. While respondents who did not experience a decrease in libido by 60% were acceptor for <2 years and by 40% were acceptor for ≥ 2 years. Based on the interviews, acceptor of 3-months contraceptive injection felt the lack of passion to have sexual intercourse with spouse, difficult and takes a long time to get aroused, that often lead to dyspareunia. The main problem is the lack of fluid caused by the lack of arousal will produce pain and will be aggravated by the spasm of genital muscles at intercourse.

Bivariate test showed p-value=0.012 and PR=0.275; (95%CI: 0.100-0.756), it means

that there is influence in duration of use of 3-months contraceptive injection acceptor to decreased libido. The risk of decreased libido is 0.275 times in acceptor for < 2 years compared to acceptor for > 2 years. R^2 square value of 0.118 shows that duration of use can predict the decrease of libido on the acceptor of 3-months contraceptive injection in Puskesmas Puri Mojokerto as much as 11.8%, while 89.2% are explained by other risk factors.

The multivariate testing showed a significance value at the corrected model for the variable of menstrual disturbance, it was p value = 0,001 meant that the average of the menstrual disturbance based on contraception duration was different and the p value = 0,010 on the decreased libido meant that the average of the incidence of decreased libido based on contraception duration was different. In the column of influence of injectable contraception 3 months value for the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root showed a p value = 0,001 that meant the duration use of injectable contraception 3 months affected on the menstrual disturbance and the decreased libido.

The injectable contraception is popular in the community, because it is accessible for every level of society and have a high effectiveness to prevent pregnancy, furthermore it doesn't interfere the sexual intercourse. The mother choose an injectable contraception 3 months because of the unaffected coitus, no inner vaginal examination, no saving of medications, low risk on health status, and the longterm application. The preference on the injectable contraception 3 months is also influenced by the informations from friends, peers, or neighbors. According to [Azinar](#) (2013), the information sourced from peers or close friends affected the individual behavior, and because of their curiosity to, it

built the individual attitude. An individu would tend to adopt information from peers or close friend although the main source is uncertain to trust ([Lesmana](#) et al., 2013).

This research resulted that the employment affected the duration of injectable contraception 3 months use. The affecting employment was the non-employment group (as the housewife). The employment affected on the individual personality and mindset. In every day, a woman would meet the employment-related environment either the family or the work place, where it possibly affected the mindset in determining the decision, one of which was in selecting the contraception method. The unemployment mothers were longer in use of the injectable contraception 3 months due to the spare time to visit the health workers for routine injections, its convenient use although it caused side effect, and the worry to swith to another contraception method because of the majority use of injectable contraception 3 months in their community.

The age affected the duration of injectable contraception 3 months use. The range was between 20-35 years old. The age between 20-35 years old was the mature age category and was easy to accept informations particularly about health, but the age ranged between 20-35 years old used longer the injectable contraception 3 months because of the less intention to replace the contraception method to reduce pregnancy. The individual perception on any issues was influenced by the past or current self experience and also by the other persons, which were the family members ([Elliana](#) et al., 2015). Although the respondents were in category of mature age, the selection of injectable contraception 3 months for longterm use was affected by the family support and by the perception of its convenient use ([Hindun](#) et al., 2013).

Table 2. Influence of Quality of KB Usage Duration to Mentrual Disorder and Decreased Libido in Puskesmas Puri, Mojokerto in 2016

KB Duration	Menstrual Disorder			Decreased Libido		
	RP	95%CI	<i>p-value</i>	RP	95%CI	<i>p-value</i>
< 2 Years	0.142	0.040 - 0.502	0.002	0.275	0.100 - 0.756	0.012
≥ 2 Years						
<i>Pseudo R²</i> = 0.208			<i>Pseudo R²</i> = 0.118			

Source: Primary Data

According to [Hartanto](#) (2013), the age ranged from 20 to 35 years old was the active reproductive age and needed contraception to reduce pregnancy, for example was IUD, injectable contraception, mini pill, pill, implant, simple method, and sterilization. This study result was consistent with the result of the study by [Astuti](#) and [Holidi](#) (2015) that showed a correlation between the mother age with the duration of hormonal contraception use that was the injectable contraception, but it was inconsistent with the result of study by [Nintyasari](#) and [Novita](#) (2014) that showed an unrelatedness between the age with the selection of hormonal contraception method.

An injectable contraception was the one of methods to prevent pregnancy using hormonal injection. The failure of this method was only around 0.3 pregnancies from 100 users in the first year of use (1 from 333 users was possible to pregnant). This injectable method required administration at the first and the third month. The injected administration would protect from pregnancy until the next schedule of administration. The method was totally controllable by the user. The injectable contraception 3 months of Depo Medroksiprogesteron Asetat (Depoprovera), consisted of 150 mg DMPA, that would be administered every 3 months via intramuscular injection (at buttock region) ([Hartanto](#), 2013). Depo-Provera (medraxyprogesterone acetate), also known as MPA and DMPA, was a progestin-containing injectable contraception that required administration every 11-13 weeks ([Clark](#) et al., 2005). The mechanism of action of DMPA in preventing pregnancy was by interfering the chain relation of hypothalamus, hypophysis, and ovary therefore it inhibited the normal endometrium growth to gain the atrophy (thinning) of the wall ([Laely](#) & [Dyah](#), 2011).

The side effects of the injectable contraception 3 months including menstrual disturbance, weightgaining, vaginal dryness, decreased libido, emotional disturbances, headache, nervotaxis, and acnes. The menstrual disturbance is an alteration of menstrual pattern experienced by the contraception acceptor, initially the symptom is the irregular and unpredicted menstruation and spotting for

7 or more days, or the heavy vaginal bleeding for several first months after depo provera administration. These events are gradually reduced in frequency with the shorter duration until amenorrhea state. This menstrual disturbance is according to the duration of DMPA use ([Ratna](#) & [Irdayanti](#), 2012).

The change of menstrual cycle affected the acceptors to drop out from the injectable contraception 3 months. The emerging side effects cause the acceptors worried, and some of them feel scared because of they perceived that the absent of menstruation is the sign of a pregnancy or a disease. But, there are some acceptors that are reassured to experience amenorrhea due to they thought that it is their valuable freedom that occur apart from the menopause. The administration of injectable contraception often trigger a menstrual disturbance (amenorrhea) that might be temporary and less disturbed the health status. A mild bleeding or spooring often occurred but it was not harmful ([Sujiatini](#), 2013).

Progesterone containing contraception changed the pattern of menstruation. But, the underlying mechanism of this menstrual disturbance is unclear. In the most of the users, blood spotting usually occur irregularly or sometimes vaginal bleeding in between of menstrual cycles prolonged and sometimes it occur as oligomenorrhea or even amenorrhea. This irregular menstrual cycle mostly occur due to influence of the hormonal factor. Besides, anxiety or stress predispose the hormonal changes in the body that directly affected the hypothalamus in maintaining the menstrual cycles. A woman that has an excessive estrogen and progesterone hormone is possible to experience menstruation in shorter period ([Sujiatini](#), 2013).

Menstrual disturbance in a form of amenorrhea in the acceptors of injectable contraception 3 months is caused by progesterone hormone that inhibited LH therefore endometrium become thinner and regress resulting inactivation of the glands. Menorrhagia commonly occur in the early use of contraception because of the progesterone cause reformation of normal capillary vessels and the endothelial cells and glycoprotein rich-containing cells therefore those provide

a protection to the endothelial cells, this process would affect the action mechanism of the hormone and normal menstrual cycles, the bleeding would be abundance. It would be called menorrhage if the bleeding is three to four times fulfilled the napkins during four hours. The reference number of blood loss is 30 cc and the excessive bleeding over 80 cc is claimed to be abnormal ([Ekasari & Risnawati, 2016](#)).

The result of this study showed a correlation between duration of the injectable contraception 3 months use and the menstrual disturbance. The proportion of the respondents with the duration of the contraception use < 2 years mostly did not experience menstrual disturbance and the respondents with the duration of the contraception use \geq 2 years mostly experienced menstrual disturbance. The result was consistent with Laely, 2011 that the most of the acceptors of injectable contraception containing DMPA experienced amenorrhea and there was no difference of the impact of menstrual disturbance between mothers that used injectable contraception containing Depo Medroksi Progesterone Asetat (DMPA) and implant contraception. The study of Lesmana, 2013 showed a correlation between the use of injectable contraception and the disturbance of menstrual cycles with the risk of the injectable contraception 3 months was 2.78 times greater to experienced disturbance of menstrual cycles compared to the respondents that used injectable contraception 1 month.

The woman that used IUD mostly have a normal menstrual cycles that was 28-35 days while the woman that used injectable contraception tend to have shorter menstrual cycles that was less than 28 days ([Ratna & Irdayanti, 2012](#)). Based on the study of Clark *et al*, 2005 all respondents that used DMPA containing contraception for 30 months experienced amenorrhea, but in this study there was no significant correlation between amenorrhea and the DMPA use because the number of the DMPA user respondents and non DMPA user respondents were proportional.

One of the side effects of the injectable contraception 3 months was a decreased libido. The decreased libido in the injectable contraception 3 months use was affected by the

duration of use and the age. The younger the user, the incidence of the decreased libido was lower, vice versa ([Gubrium, 2011](#)). The longterm use of injectable contraception 3 months, more than 2 years, caused progesterone accumulation in the body that suppressed estrogen. The declining of estrogen would affect the release of testosterone. Whereas, this hormone took role as the libido generator. Testosterone hormone is produced 0.5 mg per day in female, while in male is 6-8 mg per day. Whilst the acceptors that use injectable contraception 1-2 years experience a little libido changes ([Hartanto, 2013](#)). In addition, the decreased libido is perceived to correlate to the individual body condition like fatigue after full day work hard, unhealthy lifestyle: smoking, alcohol consumption, drugs, stress, and sexual disorder ([Noprisanti, 2012](#)).

This result was consistent with the study result of [Batlajery et al.](#), (2015) that the duration of contraception use correlated to sexual dysfunction with the risk of 3.455 times the sexual dysfunction occurred in the acceptors of the injectable contraception \geq 24 months compared to < 24 months. This result was inconsistent with the study result of Hindun, 2013 that the duration of contraception use did not correlate to sexual dysfunction in the DMPA containing contraception users, but the sexual dysfunction in the user of DMPA containing contraception correlated to the age and parity status significantly. DMPA containing contraception increased the risk of sexual dysfunction as much as 0.73 times compared to injectable contraception 1 month.

Conclusion

The most of respondents use injectable contraception 3 months for \geq 2 years. Most of them are 20-35 years old with educational status of elementary or junior high school and are unemployed as housewives. Most of the respondents that use injectable contraception 3 months for \geq 2 years experience menstrual disturbance and the decrease libido, and in a fraction of the respondents for < 2 years of use. The duration of injectable contraception 3 months use determine the menstrual disturbance and the decrease libido of Puskesmas (primary health care) Puri, Mojokerto in 2016. The menstrual disturbance

are 0.142 times occur in the acceptors for < 2 years of use compare to in the acceptors for \geq 2 years of use, and the decrease libido are 0.275 times occur in the acceptors for < 2 years of use compare to the acceptors for \geq 2 years of use.

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