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Demographic Characteristics and Reasons for Progestin Subdermal Implant (PSI) Use: Inputs for Alternative Family Planning Method

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A B S T R A C T

This study aims to analyze the demographic characteristics and reasons for Progestin Subdermal Implant (PSI) use among selected women in Central Luzon, Philippines. The study used descriptive-correlation research on 75 volunteer women using purposive sampling. The study observed significant differences in age, occupation, educational attainment, number of living children, type of family planning used before PSI use, reasons for practicing family planning, type of birth delivery, and plan to have another baby. Lastly, significant relationships were found in the same demographic characteristics and reason for the PSI use. The study concluded that there exists variation in the use of PSI and association for the benefit of PSI among the respondents.

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INTRODUCTION

Progestins are synthetic hormone drugs that mimic progesterone's endogenous hormone (Edwards & Can, 2023). In contraception, progestin is available in multiple forms (Liu et al., 2022), including an implant. Progestin subdermal implants (PSI) are a highly effective long-acting reversible contraceptive method that has gained popularity in recent years across the globe (Kolawole et al., 2018). PSI is a small, flexible rod inserted under the upper arm's skin and releases a synthetic hormone called progestin, which prevents pregnancy by thickening cervical mucus and thinning the lining of the uterus. PSI offers a convenient and discreet form of contraception that lasts 3-5 years, making it an attractive option for women who want to avoid daily pill-taking or other short-acting methods.

PSI is safe and effective in numerous clinical trials and has been endorsed by the World Health Organization (WHO) as a recommended contraceptive method. For instance, in sub-Saharan African countries, 10 out of 12 countries have an implant contraceptive prevalence rate of around six percent or higher (Jacobstein, 2018; Krogstad et al., 2019). This finding is a significant improvement from the previous study by Fiato in 2016. As access to family planning services expands globally, PSI is becoming an increasingly popular choice for women seeking reliable, long-term contraception. Although a decade ago, only less than one percent of used hormone-releasing subdermal implants worldwide (Rademacher et al., 2013).

However, the use of PSI in the Philippines has been seen as a positive development in the country's efforts to expand access to family planning services. PSI's convenience, effectiveness, and safety make it an attractive option for many women seeking reliable contraception, and continued efforts to increase access and awareness of this method can help further improve reproductive health outcomes in the Philippines. Nevertheless, since the PSI is still new here in the locality of Olongapo City, the proponents proposed this study to lay down some preliminary information which can be helpful for all healthcare workers.

This study presents the following research questions, which the current study intends to answer at the end:

1) What are the demographic characteristics of the respondents of the study?
2) Is there a significant difference in the reasons for Progestin Subdermal Implant (PSI) use when grouped according to the demographic characteristics of the respondents?
3) Is there a significant relationship between the reasons for Progestin Subdermal Implant (PSI) use and the demographic characteristics of the respondents?

The main objective of this study is to gather information, especially the demographic characteristics of the chosen sample, and try to analyze any variations or relationships that may be present within the gathered data. The results of this study can benefit healthcare workers, especially midwives, nurses, and medical doctors. At the same time, this study can also become a basis and reference to the growing literature about family planning and contribute to

promoting responsible parenting and safe motherhood to all Filipino women in the country.

LITERATURE REVIEW

There are several advantages of progestin subdermal implants (PSI) over other contraceptive methods like its long-acting (Sah et al., 2018), highly effective use, reversible (Britton et al., 2020), low-maintenance, discreet, and safe. A recent study by Waris and Fatima (2022) provided evidence of such a claim. Although, there will always be some unaccounted effects on the individuals, like physiological and psychobehavioral side effects (Mitchell & Welling, 2020)
Overall, PSI offers highly effective, long-lasting, and low-maintenance contraception that is safe and reversible. These advantages make it an attractive option for many women seeking reliable contraception.

In the Philippines, progestin subdermal implants (PSI) have become an increasingly popular contraceptive method in recent years. PSI provides a highly effective, long-lasting, and low-maintenance form of contraception suitable for women of all ages, especially those who have difficulty accessing or remembering to use other contraceptive methods (Santiago & Pastrana, 2022). The Philippine government has recognized the importance of family planning and has made efforts to increase access to modern contraceptives, including PSI. The passage of the Responsible Parenthood and Family Planning Law in 2012 marked the government's initiative. Nevertheless, the law's implementation was slow and fragmented, leading to a sluggish improvement in reproductive health (Van et al., 2021). The Department of Health has included PSI in its national family planning program and has worked to train healthcare providers in the proper insertion and removal of the implant.

However, based on several searches on the world-wide-web, only a few significant pieces of literature mainly discussed PSI use in the Philippines. Therefore, the proponents conceived writing out an article for the healthcare field as a source of essential baseline data for everyone else to use and to be a basis for other vital projects that involve family planning.

Despite these efforts, access to PSI remains limited in some areas, particularly in rural and remote areas where healthcare services are scarce. For instance, in sub-Saharan Africa, only 1% of women use implants (Jacobstein & Polis, 2014). There are also some cultural and religious barriers to using modern contraceptives, making it difficult for women to access and use PSI.

Figure 1 shows the study's conceptual framework on which the basic premise presented the independent variable (IV) – dependent variable (DV) model. One can decipher that the dependent variable includes the demographic characteristics of the respondents. They comprise the respondents' age, occupation, civil status, educational attainment, religion, location, monthly income, number of living children, type of family planning prior to PSI use, menstrual flow, how they heard about PSI, reasons for practicing family planning, plan to have baby and type of delivery. On the other hand, the study's independent variable is the reason for PSI use by the respondents. Since the study aims to determine the association between the demographic characteristics and

the reason for PSI use among the respondents, the IV-DV model suits the framework.

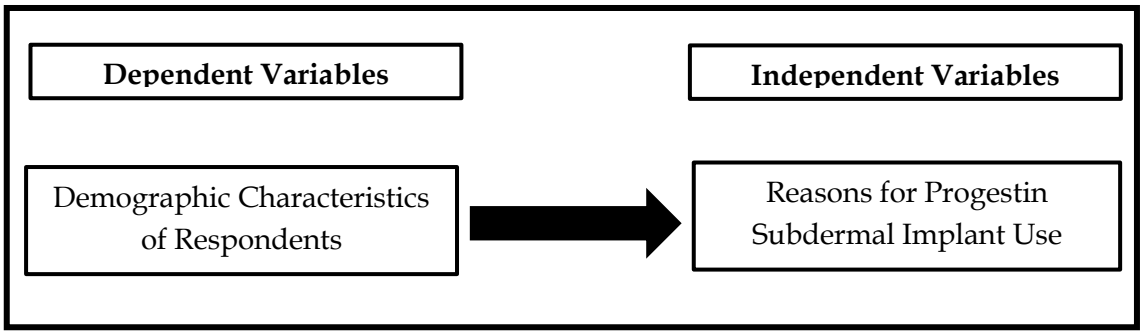

Figure 1. Conceptual Framework

METHODOLOGY

Design

The study's proponents used a descriptive-correlation research design with a survey as the primary data-gathering tool. Since the main objective of this study is to gain vital information regarding the demographic characteristics of the respondents, the said design is applicable and appropriate.

Respondents

The study's respondents were selected individuals from a community extension service from November 2018 to February 2019 sponsored by a higher education institution in coordination with the Population Commission (the Citof y of Olongapo. Seven, Philippinesty-five voluntary respondents participated with the aid of the purposive sampling technique. The inclusion criteria were: a) a participant in the said community extension service; b) a new or old family planning user; c) a woman or a mother; d) willing to try the PSI as a family planning method. Exclusion criteria, on the other hand, include a) passerby or not participant in the community extension; b) not in the family planning method; c) a male or a father; and d) not willing to use PSI.

The proponents of this survey provided and explained the PSI method to the participants. After a thorough discussion, they asked for informed consent prior to the administration of the PSI. Participation in the said family planning method was purely voluntary, and there was no threat or harm to those who opted not to join or participate.

Instrument

The instrument used in the survey was the Family Planning Client Assessment Record form by the Department of Health, which contained the respondents' basic profiles and other essential information checklists. The form does not need any validation anymore since it came from a reliable government agency which already assured its contents are viable and reliable for data gathering.

Data Analysis

The gathered data from the survey underwent a normality check to determine whether the data was standard in distribution. At the same time, upon determination of its normality, the data analyst can use the appropriate statistical treatment for the data. The normality test yielded an abnormal data distribution. Therefore, the data analyst opted to use a non-parametric test.

The data analyst performed a Mann-Whitney U test, Kruskal Wallis test, and a Chi-Square test in the study. In order to calculate the said statistical treatments, the study used a statistical software, Statistical Package for Social Sciences (SPSS) version 23, for the said purpose.

RESEARCH RESULT

The study's main objective is to analyze the demographic characteristics and the reasons for the Progestin Subdermal Implant (PSI) use by selected women in the city of Olongapo. It also determined the differences and relationships between the demographic characteristics and the reasons for PSI use. The succeeding tables below illustrate the results of the study.

Table 1. Demographic Characteristics of the Respondents

Variables	Frequency	Percentage
Age		
17-20 years old	5	6.67
20-25 years old	11	14.67
26-30 years old	17	22.67
31-35 years old	25	33.33
36-40 years old	14	18.67
41 years old and above	3	4.00
Occupation		
Teacher	5	6.67
Housekeeping	39	52.00
Student	11	14.67
Vendor	5	6.67
SBMA Employee	15	20.00
Educ. Attainment		
Elementary Graduate	8	10.67
High School Level	8	10.67
High School Graduate	26	34.67
College Level	17	22.67
College Graduate	16	21.33
Religion		
Roman Catholic	36	48.00
Born Again	17	22.67
Iglesia ni Cristo	19	25.33
Mormons	3	4.00
Location		
Banicain	6	8.00
Bataan	15	20.00
East Bajac Bajac	3	4.00
Gordon Heights	7	9.33

New Cabalan	6	8.00
Old Cabalan	11	14.67
Pampanga	2	2.67
Sta. Rita	9	12.00
West Bajac Bajac	3	4.00
Zambales	13	17.33
Monthly Family Income		
Less than 5,000 pesos	23	30.67
5,000-9,000pesos	24	32.00
10,000-14,000 pesos	19	25.33
15,000-19,000 pesos	9	12.00
No. of Living Children		
One	12	16.00
Two	11	14.67
Three	9	12.00
Four	17	22.67
Five	14	18.67
Six	8	10.67
Seven	4	5.33
Type of FPFP Prior to PSI		
COC	11	14.67
Condom	9	12.00
DMPA	9	12.00
LAM	10	13.33
POP	10	13.33
None	26	34.67
Menstrual Flow		
Scanty	29	38.67
Moderate	33	44.00
Heavy	13	17.33
How did you hear about PSI?		
BHW	15	20.00
Mother's Class	19	25.33
Friends	14	18.67
Hospitals	5	6.67
RHUs	7	9.33
Social Media	7	9.33
TVTV and Radio	8	10.67
Civil Status		
Single	53	70.67
Married	22	29.33
Reason for Practicing FPFP		
Limiting	26	34.67
Spacing	49	65.33
Type of Delivery		
NSD	63	84.00
CS	12	16.00
Plan to have another baby		
Yes	32	42.67
No	43	57.33
Total	**75**	**100**

Table 1 provides information on the frequency and percentage of responses to various variables among the survey participants. The variables include age, occupation, educational attainment, religion, location, monthly family income, number of living children, type of family planning (FP) prior to PSI, menstrual flow, how they heard about PSI, civil status, the reason for practicing FPFP, type of delivery, and plan to have another baby.

The table shows that most survey participants were between the ages of 26 and 35, with 33.33% falling within this age range. The most common occupation among the participants was housekeeping, with 52% of the respondents indicating this. Regarding educational attainment, 34.67% of the participants were college graduates.

Most participants were Roman Catholic, with 48% indicating this as their religion. The most common location was Bataan, with 20% of the participants residing there. Most participants had a monthly family income of between 5,000 to 9,000 pesos, with 32% of the respondents falling within this range.
Regarding family planning, 65.33% of the participants indicated practising FPFP for spacing purposes. Most participants had a standard delivery, with 84% indicating that they had a normal spontaneous delivery (NSD). Over half of the participants (57.33%) did not plan to have another baby.

Overall, the table provides a summary of the demographic and reproductive health characteristics of the survey participants, which can help understand the population and tailor health interventions to their specific needs.

Table 2. Differences for the Reason for PSI Use When Grouped According to Demographic Characteristics

Variables	**H**	**df**	***p*-value**
Age	19.170*	5	.002
Occupation	15.531*	4	.004
Educ. Attain.	13.059*	4	.011
Religion	0.889	3	.828
Location	6.580	9	.681
Monthly Family Income	1.447	3	.694

Note: *$p < .05$

Table 2 displays the result of the Kruskal Wallis test of difference when grouped according to their demographic characteristics. One can decipher, based on the presentation, that there were significant variations in the responses when the respondents were grouped according to age ($H[5]= 19.170$, $p= .002$), occupation ($H[4]= 15.531$, $p= .004$); and educational attainment ($H[4]= 13.059$, $p= .011$). All of the mentioned probability values were lower than the alpha significance level of .05. There is a significant difference in the respondents' responses, and we reject the null hypothesis on these particular characteristics. These results only mean that the reason for PSI usage depends on demographic characteristics, which tend to affect their decision-making, especially in the family planning method. On the other hand, there were no significant differences in the answers of the respondents when grouped according to their religion

(H[3]= 0.889, p= .828), location (H[9]= 6.580, p= .681); and monthly family income (H[3]= 1.447, p= .694). Again, one can notice that the p-values were more greater than the .05 alpha significance level. Thus, no significant differences were observed, and we accept the null hypothesis on these particular characteristics. This finding shows that regardless of religious beliefs, location, and income, the respondents do not seem to have any discrepancies in their perspectives about PSI.

Table 3. Differences for the Reason for PSI use When Grouped According to Family Characteristics

Variables	**H**	**df**	***p*-value**
No. of Living Children	34.393*	6	.000
Type of FP Prior to PSI	20.822*	5	.001
Menstrual Flow	.196	2	.907
How did you hear about PSI?	3.198	6	.784

Note: *p < .05

For table 3, the study presents the result of the Kruskal Wallis test of significant difference for the reason that PSI was used when the respondents were grouped according to their family characteristics. As seen from the table, some characteristics yielded significant results. There were significant differences for the number of living children wherein the study produced H(6)= 34.393, p= .000, and the type of family planning method prior to PSI usage generated H(5)= 20.822, p= .001. The p-value of each characteristic is less than the alpha significance level of .05. This result means a significant difference exists, and we reject the null hypothesis for these particular characteristics. However, in the case of menstrual flow (H[2]=.196, p= .907); and to whom did they hear about PSI (H[6]=3.198, p= .784 got no significant result based on the Kruskal Wallis test. The study grounded this generalization based on the obtained probability values, which were higher than the alpha significance level of .05. Therefore, there were no significant differences in the reason for PSI usage when grouped according to menstrual flow and their source of information about PSI.

Table 4. Difference in the Reason for PSI use When Grouped According to Civil Status and Family Planning Strategies

Variables	**Mann-Whitney U**	***p*-value**	**Z**
Civil Status	520.000	.394	- .853
Reason for Practicing FP	353.500*	.000	-3.671
Type of Delivery	555.000*	.003	2.975
Plan to have another baby	16.000*	.000	-8.372

Note: *p < .05

In order to determine if there exist significant differences in the reason for PSI use when grouped according to Civil Status and Family Planning Strategies, the study performed a Mann-Whitney U test. Table 4 presents the result of the

test. As one can deduce, there was a significant result obtained by the calculation. The study revealed no significant difference between the single and married respondents since *U*=520.000, *p*= .394. The probability value was more significant than the alpha significance level of .05. Therefore, we reject the null hypothesis for this particular characteristic.

On the other hand, the reason for practicing family planning generated a significant difference between limiting and spacing since the study obtained *U*= 353.500, *p*= .000. In addition, the type of delivery also yielded significant result between normal spontaneous delivery (NSD) and Cesarean Section (CSCS) with *U*= 555.000, *p*= .003; and plan to have another baby, have *U*= 16.000, *p*= .000. All of the mentioned probability values were less than the alpha significance level of .05. This result means that there exists significant difference and we reject the null hypothesis for these particular set of characteristics.

Table 5. Chi-Square Result Between Demographic Characteristics and Reasons for PSI

Profile	χ^2	φ	**df**	***p*-value**
Age	19.429*	.509	5	.002
Occupation	15.741*	.458	4	.003
Educ. Attainment	13.235*	.420	4	.010
Religion	0.901	.110	3	.825
Location	6.669	.298	9	.671
Ave. Monthly Income	1.467	.140	3	.690
No. of Living Children	34.857*	.682	6	.000
Type of FPFP Prior to PSI	22.072*	.542	4	.000
Menstrual Flow	0.198	.051	2	.906
How did you hear about PSI	3.241	.208	6	.778
Civil Status	0.391	.099	1	.391
Reason for Practicing FP	13.655*	.427	1	.000
Plan to have a baby	71.036*	.973	1	.000
Type of Delivery	8.970*	.346	1	.003

*Note: *p* < .05

Table 4 presents the result of Chi-square computation for possible relationship between the demographic characteristics and the reasons for the progestin subdermal implant (PSI) usage among the respondents. As seen from the table, there were several demographic characteristics that obtained significant results based on the calculation of the study. The following results produced evidence of significant relationships: since age got χ^2 (5, *N*=75) = 19.429, *p*= .002; occupation generated χ^2 (4, *N*=75) = 15.741, *p*= .003; and for educational attainment garnered χ^2 (4, *N*= 75) = 13.235, *p*= 0.010. In addition, for the family characteristics, the number of living children yielded χ^2 (6, *N*= 75) = 34.857, *p*= .000 and type of family planning prior to PSI garnered χ^2 (4, *N*= 75) = 22.072, *p*= .000. And for the family planning aspects of the study, the reason for practicing FPFP got χ^2(1, *N*= 75) = 13.655, *p*= .000; plan to have a baby generated χ^2 (1, *N*= 75) = 71.036, *p*= .000, and type of delivery obtained χ^2 (1, *N*= 75) = 8.970, *p*= .003.

All of the mentioned probability values were less than the .05 alpha significance level. These results only mean that all of these demographic characteristics got a significant relationship with the reason for using progestin subdermal implant (PSI) among the respondents. Therefore, the null hypothesis in these characteristics is rejected. The rest of the demographic characteristics did not generate enough to sustain a significant relationship with the use of PSI among the respondents.

DISCUSSION

The main objective of this study is to analyze the demographic characteristics and the use of Progestin Subdermal Implant (PSI) among selected women in Olongapo City. It also tried to elicit variations and associations between the demographic characteristics and the reason for using the PSI. Based on the presented results and relevant computations, the study did find some interesting findings.

There were significant differences among the respondents when grouped according to their age, occupation, educational attainment, number of living children, type of family planning method prior to PSI, the reason for practicing family planning, type of delivery, and plan to have another baby. A local study by Quijencio, Jr. (2021) supports the findings of the current study, wherein there is variation in the PSI type of clients in Pasig City.

One possible explanation for differences in the use of the progestin subdermal implant among different age groups is related to reproductive goals and preferences. Older women may prefer other methods that are easier to discontinue if they decide to become pregnant (Abasiattai et al., 2014). Occupation may also play a role in the use of the progestin subdermal implant. Women in certain professions, such as healthcare or education, may have greater access to information about different contraceptive methods and may be more likely to choose the implant because of its convenience and effectiveness. However, in the current study, more than half of the respondents were full-time housewives, therefore, disagreeing with the previous study by Madugu et al. in 2015.

In terms of Educational attainment may also be a factor in the use of the progestin subdermal implant. Women with higher levels of education may be more likely to have access to healthcare providers who are knowledgeable about different contraceptive methods and may be more likely to have the financial resources to afford this method. The result of the study also coincides with the result of Madugu et al., 2015), wherein more than 1/3 of their respondents were in their tertiary education. Women who have already had children may be more likely to choose the progestin subdermal implant because they are looking for a long-acting and effective form of contraception that does not require daily attention (Abasiattai et al., 2014). Women who have had multiple children may also be looking for a method that is more reliable than other forms of contraception they may have used in the past. In the study, about 57% of the respondent have more than three children already, which is more than expected as compared to that of Balogun et al. (2014), where 33% of the respondents have

two children already. On the other hand, women who have not had children may be less likely to choose the progestin subdermal implant because they may be concerned about the impact of the implant on their fertility in the future. They may also be more likely to choose other forms of contraception that are less invasive or easier to discontinue if they decide to become pregnant. Another aspect to consider would be the side effects that the user will experience (Olaifa et al., 2022)

The type of family planning used prior to the progestin subdermal implant may also play a role in its use. Rademacher et al. (2013) mentioned that only less than one percent of women use hormone-releasing implants. Women who have used other forms of contraception in the past, such as oral contraceptives or condoms, may be more likely to choose the implant because they are looking for a more reliable form of contraception. Women who have not used any form of contraception in the past may be less likely to choose the implant because they may be less familiar with long-acting reversible contraception and its benefits. In a previous study by Mayoche (2022), the trend in the method of contraception among teenagers showed an increased increasing use of male condoms and oral contraceptives. Furthermore, alternative birth control options for teenagers use injectable contraception.

The Chi-square computation of the study also revealed a significant relationship between the demographic characteristics and the reason for PSI use among the respondents. There was substantial evidence of an association between the selected demographic characteristics of the respondents and the reason for PSI use. The study further found that age, occupation, educational attainment, number of living children, type of family planning used prior to the implant, the reason for practicing family planning, plans to have a baby and type of birth delivery were associated with the reason for PSI use. The current study coincides with the past study of Abasiattai et al. (2014); the age group of women that accepted implants were 30-34 years old. In terms of occupation and educational attainment, Madugu et al. (2015) provided both disagreement and support to the current result of the study. Women who have not had children may be less likely to choose the PSI because they may be concerned about the impact of the implant on their fertility in the future. A meta-analysis study by Riedel et al. in 2020 concluded that PSIs have the potential to increase contraception among women. Women who have used other forms of contraception in the past, such as oral contraceptives or condoms, may be more likely to choose the PSI because they are looking for a more reliable form of contraception as well as long duration, reversibility and efficacy (Bachorik et al., 2015).

Women who are practicing family planning to prevent pregnancy may be more likely to choose the PSI because of its high effectiveness rate. Since PSI is a modern family planning method, increased use was high among women (Abdalla, 2020). Women who are practising family planning for other reasons, such as to regulate their menstrual cycle, may be less likely to choose the PSI. However, early discontinuation due to unacceptable bleeding needs pre-insertion counselling (Weisberg et al., 2014).

Also, women who are planning to have a baby in the near future may be less likely to choose the PSI because of its long-acting nature. Women who have had a cesarean section delivery may be more likely to choose the PSI because it can be inserted immediately after delivery. This idea is parallel to the perspective of Olaifa et al. (2022), where the desire to conceive is relevant among the participants of their study.

It is important to remember that the choice of contraceptive method is a personal decision that should be made in consultation with a healthcare provider based on individual needs and preferences. While these factors may influence the use of the PSI, each woman's situation is unique and should be evaluated on a case-by-case basis.

CONCLUSIONS AND RECOMMENDATIONS

Based on the result of the study, the proponents hereby concluded that the characteristics of the respondents were aged 31-35 years old, housewives, high school graduate, Roman Catholic in faith, located in Bataan area, with monthly income between 5,000-9,000 pesos, with four living children, with no contraception used, with moderate menstrual flow, attended a mother's class session, single, trying birth spacing, with normal spontaneous delivery, and no longer want to have a baby. There were significant differences in the reason for respondents' use of Progestin Subdermal Implant (PSI) in terms of age, occupation, educational attainment, number of living children, the type of family planning prior to PSI, the reason for practicing family planning, type of delivery, and plan to have another baby. There was a significant relationship between the reason respondents use Progestin Subdermal Implants (PSI) with age, occupation, educational attainment, number of living children, type of family planning prior to PSI, the reason for practicing family planning, type of delivery and plan to have another baby.

Based on the results and conclusion of the study, the researchers hereby recommend that healthcare workers (e.g. midwives or nurses) provide relevant and timely health education among couples regarding the appropriate and suitable family planning method for them. Also, users should follow check-up routines and monitoring of untoward or unpleasant side-effects to those women using PSI. Healthcare providers should offer health teaching related to management of side-effects and warning signs related to PSI use. At the same time, users should be acquainted with reminders and assessments of using PSI for optimal results. Finally, healthcare providers should encourage health promotion for PSI use and other relevant measures pertaining to the use of the implant.

ADVANCED RESEARCH

In the process of writing this research, the proponents foresee several limitations, just like other research articles available out there in the field. First, the respondents for the study are pretty challenging to achieve since family planning is a choice done by a couple. Second, the duration of gathering enough data is painstakingly long and needs a lot of patience and following-up. Another one was the proximity of the study, wherein some neighbouring provinces also

participated in the study. The study is part of a community extension service program; thus, information dissemination is also equally important and extensive. Additionally, in terms of technical writing, there are still some flaws within the manuscript that may be overseen by a professional proofreader. Thus, a constructive criticism is very much welcomed by the proponents for future elaboration and improvement of the entire manuscript.

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