

## Women Experience of Tubectomy in Kiarapedes Subdistrict

MOUDY E.U. DJAMI<sup>1</sup>, INDRAYANI<sup>2</sup>, ONG TJANDRA<sup>3</sup>, ZAHRA ALAYDRUS<sup>4</sup>

### ABSTRACT

**Background:** The use of contraception to control woman's fertile is beyond expectation. Tubectomy is considered the most effective method to stop having more babies, however the percentage is still low. There is controversy related to impact of tubectomy. The study aims to explore tubectomy acceptors' experience before and after tubectomy.

**Method:** Qualitative study with oral thematic history method was used. Primary participants were women having tubectomy for one year at least. Sample selection was done using purposive sampling. Data collecting was done through thorough interviews in September 2013, in Kiarapedes Subdistrict. 32 participants were having thorough interviews; 18 acceptors, 1 midwife, 1 field officer of family planning, 12 husbands.

**Result:** Interesting findings covered participants' experience during pre and post-tubectomy. Aspects of experience which were explored pre-tubectomy covered candidates' opinions, pre-counseling, reasons of choosing, psychology before action. Meanwhile, post-tubectomy covered psychology after action, complaints, health, sexual change, regret.

**Conclusion:** Tubectomy has no negative impact to physical health, psychology, women's sexual function. Government needs right promotion media of tubectomy while training health personnels as candidates' counselors in desicion making related to their participation.

**Key words:** experience, acceptor, tubectomy, physical health, psychology, sexual

---

### INTRODUCTION

Indonesia is the fourth densed population in the world after Republic of China, India, and United States of America<sup>1</sup>. Uncontrolled increase of population results in increase of burden which should be borne by the Country, population affairs, and hamper of Country's development. Family Planning Program through the use of contraception is one of the efforts to stabilize the population growth<sup>2,3,4</sup>. However, the use of contraception to control women's fertile does not work as expected. In the last decade, the utilization of modern contraception method has been a very slow increase, including the use of tubectomy which is considered the most effective method for women to stop having more babies<sup>2</sup>. In Indonesia, the participation of women to become tubectomy acceptors shows a lower percentage compared to other modern contraception methods, which is only 3.2%<sup>1</sup> and 12.5% in India<sup>5</sup>.

The less participation of women in becoming tubectomy acceptors was influenced by many factors such as stigma and horror stories which were circulated in the society concerning tubectomy, and

religious reasons<sup>6</sup>. Result of study reported that tubectomy caused decrease of libido, menstruation disorders, pelvis pain, dyspareunia and depression<sup>7-8</sup> which in turn decreased the quality of woman's life.<sup>9</sup> Researchers speculated that tubectomy post-syndrome was caused by problems of blood supply in utero ovarium artery so that the ovarium did not function properly. Blocked utero artery as a result of tubectomy caused manifestation of acute pressure which was followed by a state of local hypertension in ovarium. This disturbed the blood supply from utero artery to ovarium and caused disturbance of ovarium function in clinical manifestation of menstruation disorders<sup>8</sup>. Problems of blood supply in utero ovarium artery might also decrease supply of follicle stimulating hormone (FSH) and luteinizing hormone (LH) which in turn would decrease the production of estrogen and progesterone. So, many tubectomy post-syndrome were related to unbalanced hormone of estrogene and progesterone<sup>7,10</sup>. However, other studies reported that there was no change in sexual desire and sexual pleasure after tubectomy.<sup>11</sup> In contrary, tubectomy gave positive effects on sexual satisfaction and spontaneity<sup>12,13</sup>. This was supported by Maholtra's study which reported that 80% of tubectomy acceptors had increasing life quality<sup>14</sup>. The controversy related to impacts of tubectomy encouraged the researchers to do this study. This study aims to explore the tubectomy acceptors' experiences during pre and post-tubectomy.

---

<sup>1,2</sup>Akademi Kebidanan Bina Husada, Jl. Kutai Raya No. 1 Perumnas III, Bencongan, Kelapa II, Tangerang

<sup>3</sup>Sekolah Tinggi Kesehatan Bina Permata Medika, Jl. Kutai Raya No. 1 Perum III Karawaci, Tangerang, Banten.

<sup>4</sup>Akademi Kebidanan Dewi Sartika Bandung, Jl. Terusan Kopo KM 12.8, Katapang, Bandung, Jawa Barat

Correspondence to Indrayani, M.Keb, Email: indrayani\_akbid@yahoo.co.id, Ph. +622-155655372; Fax. +622-155655372

## RESEARCH METHOD

It is a qualitative study with oral thematic history method. The oral thematic history enables the identification of each participant's experience concerning her participation as a tubectomy acceptor. The knowledge of individual history and participant's experience will become a valuable information for health professionals. Ideas and individual experiences may contribute to the understanding of peoples who live in particular sociocultural context<sup>15,16</sup>.

Table 1: Distribution of characteristics of tubectomy acceptor

The characteristics of participants	n	%
Age when they became tubectomy acceptors	0	0.0
≤20 years old	2	11.1
>20-30 years old	7	38.9
>30-40 years old	7	38.9
>40-50 years old	2	11.1
>50-59 years old	0	0.0
≥ 60 years old		
Religion		
Moslem	18	100.0
Christian	0	0.0
Hindu	0	0.0
Buddha	0	0.0
Marital status		
Legal	18	100.0
Living together without marriage	0	0.0
Number of children		
<2 children	0	0.0
2-4 children	14	77.8
>4 children	4	22.2
Education		
Never attending school	0	0.0
Elementary school	5	27.8
Junior high school	8	44.4
Senior high school	5	27.8
College or University	0	0.0
Occupation		
Unemployed	15	83.3
Cadre	1	5.6
Team of village activator	1	5.6
Officer of district administration	1	5.6
Source of information		
FOFP	8	44.4
Cadre	4	22.2
Tubectomy acceptor	4	22.2
Midwife	2	11.1
Length of being acceptor		
1-2 years	6	33.3
>2-4 years	10	55.6
>4 years	2	11.1

The primary participants in this study were women who had tubectomy for one year at least. A year after having tubectomy was considered the right

time to pass over the adaptation period, where light infection and health problems affected by surgery was not an issue. Sample selection was done using purposive sampling technique. The total of participants recruited in this study was 32, covering 18 tubectomy acceptors, 1 midwife, 1 Field Officer of Family Planning (FOFP), and 12 husbands. The characteristic of tubectomy acceptors who were involved in this study can be seen in Table 1.

Data collecting of the study was done in September 2013 in Kiarapedes Subdistrict, Purwakarta Regency, West Java Province, Indonesia. Data collecting was done through thorough interviews, using interview guidance which was based on two previous interviews. Thorough interviews were done face-to-face and they were focused to investigate the individual experience of every participant. Interviews lasted for 40-50 minutes in participants' houses. Thorough interviews were done after interviewers gave explanation concerning this study and after participants informed consent, including an agreement to use recorder. Thorough interviews were done in Indonesian and/or sundanese. All results of recorded audio interviews were transcribed into Indonesian. Results of transcription were cross-checked with the researchers' result of recording. For every transcription, issues related to the purpose of study were identified, given codes and classified. Data verification was done by triangulation method.

## RESULT

**Before being acceptor opinion:** Most participants admitted that they had bad opinions before becoming tubectomy acceptors, including an opinion that tubectomy was similar to hysterectomy, and was against religion because it was an action of killing fetus, gave negative impacts to women's health and disturbed the sexual intercourse. Horror stories which were told by participants' friends before having tubectomy made them feel afraid and doubt. But they could overcome such feelings after they heard the testimonies directly from the tubectomy acceptors.

Religious instruction which was declared by Indonesian Council of Religious Leader in July 2012 in Cipasung stated that contraception method was not proscribed if; 1) it is for a purpose which is not against Islam law like health reason; 2) it does not cause permanent bareness; 3) it is guaranteed that recanalization can be done to restore the reproduction function; 4) it does not endanger the patients; 5) it is not included in permanent contraception method. The choice of tubectomy as contraception method is women's right and there is no compulsion from any party.

"I heard my friend said that tubectomy was similar to hysterectomy, so the woman would never be able to get pregnant again after having tubectomy. At that time, I was really afraid and was about to cancel it. Fortunately, the health personnel gave me the chance to meet other women who had become tubectomy acceptors, and I discussed it with them. Finally, I was convinced to become a tubectomy acceptor" (participant 2)

**Counseling before action:** Counseling is an important thing which should be attended by a candidate of tubectomy acceptor to ensure that the candidate meets the criteria of an acceptor. The criteria of tubectomy acceptor which are established include: 1) volunteer, after counseling of various contraception method the couple chooses tubectomy contraception; 2) happy, the couple has a harmonious marriage, the mother is over 30 years old and has at least 2 children of over 5 and 2 years old; 3) health, the candidate is healthy.<sup>17</sup> Ideally, the decision making to become tubectomy acceptor is done through established counseling process which is attended by a counselor. This is meant to anticipate the possibility of regret in the future. However, this study found different things where all participants admitted that they did not have any counseling before deciding to become tubectomy acceptors. They said that they only got information related to tubectomy.

*"There was no counseling, but I got information from the FOFP. At that time, I was informed that I should go to Community Health Centre if I felt sick after having tubectomy. However, I did not have any complaint after having tubectomy, so I did not go to Community Health Centre"* (participant 5)

Data verification which was done on FOFP revealed that the officer was the weakness in the implementation of Family Planning safari program. It was a rising district that has only one FOFP, and the officer worked alone to promote Family Planning program. On one side, the officer had limited knowledge of tubectomy. On the other side, there was no counselor of tubectomy who was prepared by the government for the area.

*"It is a new subdistrict, a rising district. Not all villages have FOFP. Let alone a counselor, even I am the only FOFP in this subdistrict. Let alone giving counseling, I am not even confident giving elucidation since I've only got Diploma 1 and I was trained for some months to become a FOFP. So, I have only limited knowledge of Family Planning"* (FOFP)

**Reasons of choice:** Participants had various reasons. Health was the most important reason revealed by the participants because not all contraceptions were suitable for the health condition of the participants. The more frequent a woman gets

pregnant and gives birth, the more increasing risk of complication and mortality. Generally, hormonal contraception devices which are used by women create many side effects to the women's health. This will add the women's burden (pregnant, giving birth, breast feeding, taking care of children and family, and health condition). Becoming tubectomy acceptors, the women do not need to think about kinds of contraception they will use.

"Before becoming a tubectomy acceptor, I have tried many kinds of hormonal contraception and intra uterine device (IUD) but they were not suitable for me. When I chose pills, I often forgot to take it so I got pregnant. Then I tried implant, monthly injection and also three-month injection, but from the beginning of the use, I got a longer menstruation period. At that time, the midwife said that I might get anemia. I also tried IUD, but it did not work well and I got bleeding. Finally, I was suggested to become a tubectomy acceptor" (participant 7)

Economizing was the second most important reason revealed by participants. It was because they had to spend 20-30 thousand rupiahs monthly for family planning. Meanwhile, tubectomy was free of charge so that they could save 2.4-3.6 million yearly. They did not have fixed monthly salary, therefore participating in Family Planning safari program held by the government would help their economy because they could use the money to pay their children education.

"Up to present, I use monthly injection. So, every month I have to spend 20 thousand rupiahs which means in one year I spend 240 thousand rupiahs plus food, monthly shopping, school fees, and other household needs. In the mean time, my husband's income as a temporary laborer is not enough to feed the family. Therefore, I feel interested when I heard free tubectomy. Moreover, it is too risky in my age to get pregnant again" (participant 1)

Generally, having children is highly expected in every marriage. Every couple has their own idea on the number of children they want. The number of children depends on the couple. It may be one, two, three and so on. If the couple is successful in having expected number of children, the harmony of the family may influence the choice of contraception method for them. It was in line with the findings of this study where participants decided to become tubectomy acceptors because they already had ideal number of children, girls and boys.

"I chose tubectomy because my husband and I did not want to have more children. We already have three children, two girls and one boy. Instead of come and go to midwives for family planning, it is better to become a tubectomy acceptor"(participant 10)

Besides, there were participants who chose tubectomy for more practical reasons. By participating as tubectomy acceptors, they did not need to come and go to midwives for family planning. One action would protect them all their lives.

"I did not want to get disturbed by taking pills everyday, or being injected by the midwife since I felt hurt in my bottom after the injection. Even if using implant or IUD, you still have to see the midwife for a check up. The most practical one is tubectomy. Once for all. It is practical, isn't it?" (participant 13)

However, some participants admitted that they were influenced by the surrounding people, especially the family and neighbours who had already become tubectomy acceptors. They told them the positive experiences to become tubectomy acceptors.

"Here, all women in my age had already become tubectomy acceptors. They said that it was comfortable and there was no health problem, so I took their advices and it is proven that tubectomy is comfortable and safe. Now, I do not need to think about using any other contraception method (while laughing)" (participant 8)

**Psychology before action:** Though all participants were confident to become tubectomy acceptors, some of them felt worried, tensed and afraid. It was a normal condition experienced by all patients who would go for a surgery, including tubectomy.

"Just before the surgery, I really felt tensed. I imagined how if it was not successful. At that time my husband only smiled seeing me tensed, because it was me myself who insisted on having tubectomy" (participant 11)

**After being a tubectomy acceptor:**

**Psychology after action:** After the procedure of tubectomy, all participants admitted that they felt relieved, calm and happy because what they were afraid of did not happen. They revealed that tubectomy surgery was not as bad as they heard and imagined. They did not feel negative perception on the change of fertility because it was exactly an effect they had expected.

"After it was done, I felt relieved. The fact was that tubectomy was not as bad as people said. Ha..ha..and I do not feel that I become an imperfect woman just because I am not a fertile woman anymore. That is what I have expected from this contraception" (participant 15)

**Complaints:** Tubectomy surgery is an invasive action. Therefore, feeling uncomfortable after surgery is normal. Some participants admitted that they had some small problems after tubectomy surgery such as slight stomach upset and slight pain, but it recovered soon after taking a rest and medicines.

"After the surgery, I did not feel any pain but slight stomach upset. It was a little bit uncomfortable, but it lasted only few days after the surgery. It recovered the next week after the wound was cleaned and I was given some medicines." (participant 9)

**Health:** Tube occlusion which is done on tubectomy will not affect the function of other body parts except that it hinders the sperm from fertilizing the ovum. The stigma saying that tubectomy gives negative impacts on women is not true. Evidences during this study showed that all participants had better health after tubectomy.

"I am not sure if it is because of tubectomy, but the fact is that I feel much better now. I feel healthier, more energetic, and I do not get a headache anymore just like what I used to have when I used hormonal contraception" (participant 3)

**Change of sexual activity:** Sexual activity is crucial in a marriage life and it is one of primary domains of one's life quality. All participants admitted that their sexual life was not deteriorating. On the contrary, most of the participants felt that their libido and sexual satisfaction were increasing after tubectomy.

"My husband says that it is more satisfying. Ha..ha..at that time, the midwife and cadre has reminded me not to get surprised if my husband would like to have more sexual intercourses after tubectomy since he would feel a different sensation. My husband said that he got a feeling of no burden. A woman will at first say no, but finally she will agree to have it. She is usually ashamed of initiating to have sexual intercourse, but she will be happy to do it when the husband asks her to do so. Ha..ha.." (participant 18)

Verification which was done by the researchers to the participants' husbands revealed that after tubectomy their sexual life became much better.

"I feel that after tubectomy, our sexual life is getting much better because she has no more complaints now. Even, she is hotter than ever when we have sexual intercourse" (husband)

**Regret:** Though 50-70% of women who follow the reversal procedure are successful in having intra-uterin pregnancy, it will be wiser if the choice of tubectomy method is based on firm decision. This will prevent from potential regret in the future. Generally, request of having recanalization is proposed in cases of child's death, divorce and other reasons where a woman feels that she needs to get pregnant again. Though the participants admitted that they did not get any pre-counseling, all participants felt no regret and satisfied with the decision they made, and they did not want any recanalization.

"I have no regret at all. Even I feel satisfied because I have made the right decision" (participant 17)

**DISCUSSION**

Woman's aging affects the deteriorating of reproduction function and increases the health risk, especially for women >35 years old. Participation of women in becoming tubectomy acceptors will give lots of benefits to them because they do not need to use other contraception devices, so this will prevent them from side effects of the use of other contraception devices such as vaginal disease, obesity, change of menstruation period, and headache. When it is done properly and in accordance with the procedure, tubectomy will not give negative impacts to the woman's health. However, lack of knowledge on tubectomy as an occlusion to the two fallopian tubes in order to prevent the sperm from fertilizing the ovum has created a bad stigma in the community. In woman's system of reproduction, fertilized ovum is produced by the ovary every month, from menarche to menopause. Ovum cells will then be expelled during ovulation, and taken by fimbriae to fallopian tube canal. Fertilization happens when ovum and sperm cells meet in ampulla tube. Tying of the two tubes prevents the sperm from fertilizing the ovum. Therefore, no embryo will become fetus and this is the reason why tubectomy is not a murder.

The stigma on negative impacts of tubectomy circulates in the community because sufficient information on tubectomy is not available and health personnel do not take a big part in educating the community. It was in line with the findings of this study where participants were not provided with the counseling procedure. They only got brief explanation from the FFP who had limited knowledge of the subject. Limited knowledge may give chances of misunderstanding of information. Ideally, acceptor candidates must be in a condition where they are ready to understand the implication of tubectomy. Counseling must be given by a counselor, covering various side effects, requirements which should be fulfilled by the candidates, complication and rate of failure which may happen. Counseling is meant to ensure whether the candidates and their husbands really understand their choice of tubectomy, and to prevent regret in the future.

On the other hand, reports on tubectomy post-syndrome like menstruation problems, loss of libido, pelvic pain, dyspareunia, depression and other symptoms similar to menopause still need other further studies to make sure the causes of the syndromes<sup>7,8</sup>. This must be done because there are still debates on the causes of tubectomy post-syndrome. Up to present, there is no agreement on the definition of tubectomy post-syndrome because the determinant of the syndrome is difficult to study<sup>8</sup>.

Carmona et.al denied the previous researcher's speculation which assumed that tubectomy post-syndrome was caused by blood supply disorder to the utero ovarium artery so that it disrupted the function of ovary. Carmona et.al study showed there was no significant change on the curve of hormone FSH, LH, estradiol, inhibin and progesterone both in group of tubectomy and group of control for parameter<sup>18</sup>. Results of Carmona et.al study were in accordance with results of Wu et.al which did not find any significant difference in hormonal pattern of the menstruation cycle, both in group of tubectomy and group of control. Significantly, LH rate was lower with the group of control. Also, the upper phase of estradiol preovulatory was much lower than the luteal phase in group of tubectomy. Only one out of ten women in group of tubectomy, who had got tubectomy for 1.5 years, showed lack of luteal function, but the ovulation function and menstruation cycle was normal. Therefore, it was concluded that the hormonal profile stayed normal after tubectomy<sup>19</sup>. The same things were also reported in Shoebeiri and Atashkhooi's study where they did not find consistent differences on ovary function. Although the branch of uterine artery which related to the branch of ovarian artery on the tube was frequently blocked during tubectomy. Ovary got blood supply from ovarian artery which was not influenced by tubectomy because it was a direct branch from aorta and the location was far from the occlusion<sup>20</sup>. The explanation was supported by Kjer's study<sup>21</sup> which focused on aspects of libido, frequency of coitus, comfort of coitus, less pleasure, sexual life and woman's feeling after tubectomy. The results showed that there was no change of libido, frequency of coitus, and comfort of coitus of the two groups. The significant difference was in the more relaxing sexual life and perception of woman's genital. Next, Costello's study<sup>11</sup> also reported that there was no change of sexual pleasure before and after tubectomy.

Findings of this study also supported findings of Carmona et.al which reported that tubectomy did not give negative impacts to the acceptor's health and psychology<sup>18</sup>. On the contrary, participants admitted that they were healthier than before having tubectomy. The strong relation of woman's physical health, psychology and sexual was not debatable anymore. It was in line with the findings of this study where the women and their spouses had much better sexual life after the wives became tubectomy acceptors. Similar findings were also reported in previous studies that tubectomy gave positive effects on sexual pleasure and spontaneity, where tubectomy acceptors admitted that they felt happy with their sexual life<sup>12,13</sup>. The feeling of being protected had given special comfort to the acceptors

and their spouses so that they could be more freely in expressing their sexual relationship without worrying of being pregnant<sup>22</sup>. This would increase the life quality of tubectomy acceptors. It was in line with the results of study which reported that tubectomy acceptors had better sexual functions such as increasing libido, desire, lubrication, orgasm, and sexual satisfaction compared to women who did not become tubectomy acceptors<sup>23</sup>.

## CONCLUSION

Tubectomy does not give negative impacts on physical health, psychology, and women's sexual functions. The government needs to consider the production of the right promotion media to promote tubectomy and provides health personnels with trainings to become tubectomy counselors who can help tubectomy candidates in the decision making related to their participation in this method.

**Acknowledgements:** We would like to thank to Purwakarta District Health Office and Mr. Iwan Jamaludin, A.Ma that have helped us in conducting this study, and to all participants who are willing to share their experiences with us.

**Competition Interests:** All authors state that they have no competing interests within this study.

## REFERENCES

1. BPS, BKKBN, Kemenkes RI, MEASURE DHS, International ICF. Survey of demography and Indonesia Health 2012. Jakarta: Badan Pusat Statistik (BPS), Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN), dan Kementerian Kesehatan Republik Indonesia (Kemenkes RI); 2013.
2. Ojah J, Baruah MK, Baishya AC. Profile of beneficiaries of permanent sterilization from urban slum of Guwahati city of Assam. *J Obstet Gynaecol Barpeta*. 2014;1(2):90-4.
3. Sheera MA. Awareness and use of contraceptives among Saudi women attending primary care centres in Al-Qassim, Saudi Arabia. *Int J Health Sci*. 2010;4(1):11-21.
4. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J. Family planning: the unfinished agenda. *Lancet*. 2006;368(9549):1810-27.
5. Upadhye JJ, Upadhye JV. Contraceptive awareness and practices in women of urban India. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(4):1279-82.
6. Boulay M, Valente TW. Social affiliation, interpersonal discussion and family planning knowledge, attitudes and practice. *Int Fam Plann Perspect*. 1999(25):112-8.
7. Cattanaich J. Oestrogen deficiency after tubal ligation. *Lancet*. 2001;1(8433):847-9.
8. Lethbridge DJ. Post tubal sterilization syndrome. *Image J Nurs Sch*. 2001;24(1):15-8.
9. Kustiyati S. The difference of life quality between tubectomy women and without contraception, Field Study in Surakarta [Thesis]. Bandung: UNPAD; 2012.
10. Li W, Wang Z, Wu R. Changes in endothelin-1 and trial natriuretic peptide in peritoneal fluid of pelvic venous congestion syndrome after tubal sterilization. *Zonghua Fu Chan Ke Za Zhi*. 1996;32(9):533-6.
11. Costello C, Hillis SD, Marchbanks PA, Jamieson DJ, Peterson HB. The effect of interval tubal sterilization on sexual interest and pleasure. *Obstet Gynecol*. 2002;100(3):511-7.
12. Smith A, Lyons A, Ferris J, Richter J, Pitts M, Shelley J. Are sexual problem more common in women who have a tubal ligation? A population-based study of Australian women. *BJOG*. 2010;117(4):463-8.
13. Shain RN, Miller WB, Holden AE, Rosenthal M. Impact of tubal sterilization and vasectomy on female marital sexuality: results of a controlled longitudinal study. *Am J Obstet Gynecol*. 2001;164(763-771).
14. Malhotra N, Chanana C, Garg P. Psychosomatic sequelae after sterilization in Indian women. *The Internet J of Gyn & Obs*. 2007;6(2).
15. Frank AW. When body need voices. In *The wounded storyteller-body, illness and ethics*. Chicago, IL: University of Chicago Press; 1995.
16. Meihy JCSB. Projeto de historia oral. In *Manual de historia oral*, edn 2. Sao Paulo: Loyola; 1998. p. 45-66.
17. Rachimhadhi T, Angsar I, Hadisaputra W, Waspodo J, Mu'ammam. Reference book of *laparaskopi oklusi tuba anastesi lokal*. Jakarta: Perkumpulan Kontrasepsi Mantap Indonesia (PKMI), Departemen Kesehatan Republik Indonesia dan Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN); 2003.
18. Carmona F, Cristobal P, Casamitjana R, Balash J. Effect of tubal sterilization on ovarian follicular reserve and function. *Am J Obstet Gynecol*. 2003;189(2):447-52.
19. Wu E, Xiao B, Yan W, Li H, Wu B. Hormonal profile on the menstrual cycle in Chinese woman after tubal sterilization. *Contracept*. 1997;45(6):583-93.
20. Shoebeiri MJ, Atashkhoui S. The risk of menstrual abnormalities after tubal sterilization: a case control study. *BMC women's health*. 2005;5(95):1472-7.
21. Kjer JJ. Sexual adjustment to tubal sterilization. *Eur J Obstet Gynecol Reprod Biol*. 1999;35(211-214).
22. Barnett B, Konate M, Mhloyi M, Mutambirwa J, Francis-Cizororo M, Tarubereker N, et al. The impact of family planning on women's live; Findings from the women's studies project in Mali and Zimbabwe. *Afr J Reprod Health*. 1993;3(1):27-38.
23. Indrayani, Djami MEU, Tjandra O, Judistiani TD, editors. Comparison of quality of life between tubectomised and non-tubectomised women in district of Kiarapedes Purwakarta Regency. Australian Nursing and Midwifery Conference; October 17th-18th 2013; Newcastle, NSW: HNE Handover: For Nurses and Midwives.