

# Awareness, Perceptions and Future Plan for Bilateral Tubal Ligation as a Method for Contraception in Pakistani Women

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## Abstract

**Objective:** To assess the awareness, perceptions, and future plan for bilateral tubal ligation as a method of contraception in Pakistani women  
**Methodology:** This cross-sectional study was conducted from July 2021 to October 2021 at outpatient department of Obstetrics/Gynaecology, National Medical Center Karachi. Married women between the ages of 18-40 years were included in this study. A predesigned proforma regarding patient demographics, future plans, and questions regarding awareness and perceptions about bilateral tubal ligation as an option for contraception was filled by all participants.

**Results:** Total number of patients was 365; our results showed that the mean age was 29.71±5.96 years. Majority of the participants 289 (79.2%) did not plan to have BTL for contraception even after completion of their family. A significant proportion of women 282(77.26%) had already heard about BTL, and believed that it could cause negative effects on intercourse 267 (73.2%), menstrual abnormalities 281(77%) or weight gain 254(69.6%). Moreover, 309(84.7%) women thought that BTL was a 100% reliable and effective method for contraception. Women who had both a girl and a boy child were more open to the idea of having BTL in future. Level of education, age, better socioeconomic status, and history of complications in previous pregnancies had a positive correlation with a plan to have BTL after completion of the family.

**Conclusion:** The findings of his study concluded that although most Pakistani women were aware of BTL procedure they were not willing to use it as a method of contraception. The majority of the participants had wrong perceptions and believed in myths regarding BTL. Proper counseling of women of reproductive age must be done to spread correct information about the benefits of BTL.

**Keywords:** Awareness, perception, bilateral tubal ligation, contraception.

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## Introduction

Pakistan is the 5<sup>th</sup> most populous country of the world, with a growth rate of about 2%.<sup>1</sup> Easy availability and awareness about family planning methods is essential to bring down the ever-increasing population. Effective family planning services in developing country like Pakistan vital to reduce the population surge, pregnancy related maternal mortalities, neonatal complications and improve mother and child health.<sup>2</sup>

World health organization defined family planning as “medicines and methods that allow people to attain their desired number of children, if any and to determine the spacing of their pregnancies”.<sup>3</sup> Lack of awareness about proper contraceptive methods is a major problem

worldwide. This lack of knowledge and awareness has led to high levels of unmet need for family planning (UMNFP). About 45% women had UMNFP in Asia. Researcher has reported that 21% women in Pakistan did not have knowledge or access to contraceptive medicines and methods.<sup>4</sup>

Family planning has remained a controversial topic in conservative and religious societies like Pakistan. Several factors like poverty, illiteracy, desire for large family, ignorance, false religious believes, societal pressures, male dominance and fear of side effects have prevented Pakistani from using contraceptive methods.<sup>5</sup>

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Women are not allowed to take independent decisions to improve their reproductive health.

Bilateral tubal ligation (BTL) is considered to be one of the most effective and reliable method for long-term contraception. It is considered a better option because it does not use reproductive hormones or foreign bodies (IUCDs) for contraception. BTL has also been associated with decreased risk for pelvic inflammatory disease (PID) and ovarian cancer. It is achieved through use of contraceptive methods and the treatment of infertility. BTL is considered to be an irreversible female sterilization method, with very low failure rate of about 0.5% in 1 year, and 1.85% in 10 years.<sup>6-7</sup>

BTL can be performed right after a C- section while patient is still in the operation theater. It may be performed in puerperal period (within 24-48 hours of delivery) or a few months after delivery or abortion. The BTL surgery involves bilateral tying, cutting and blocking of fallopian tubes with either abdominal or vaginal approach. Grand multi parity, scarred uterus, two or more C-sections, neoplasia, cardiac insufficiency and psychiatric disorders in women are common indications for BTL. The procedure can be performed under general, epidural or spinal anesthesia. BTL is the most popular method of permanent female contraception throughout the world.<sup>8-9</sup>

BTL is a commonly employed method for family planning in Pakistan. However, there is a lack of counseling about the benefits of BTL and education about female sterilization which causes mostly older women to opt for this procedure. Most public health experts agree that because of delayed BTL in Pakistani women the rate of population growth still remains very high.

The current study aims to explore the level of awareness, various perceptions, myths and future plan for bilateral tubal ligation as a method for contraception in Pakistani women of child bearing age. Our study can be helpful to find gaps in correct information about BTL so appropriate efforts can be initiated by gynecologists and mid wives for adequate awareness regarding BTL.

## Methodology

This cross sectional study was conducted from July 2021 to October 2021 at outpatient department of Obstetrics/Gynaecology, National Medical Center Karachi. Permission from the Ethical Committee of the Hospital was taken. A total of 365 married women, who visited Obstetrics/Gynaecology OPD were enrolled in this study. Informed consent was obtained and all

questions were explained to the patients. Questionnaire included patient's data regarding age, religion, education, socioeconomic status, current mode of contraception, parity, gender of children, number of live children, current mode of contraception, parity, previous mode of delivery and history of any complication in previous delivery filled by the patient. The participants also answered (YES/NO) questions regarding future plan, awareness and perception about effectiveness and side effects of BTL procedure. Women who were unmarried, >40 years of age, already had BTL for contraception or were not willing to participate were excluded from the study. All completed questionnaires were collected by principal investigator.

All data was entered in analyzed using SPSS version 21. Patient's recognition data for instance name and surname were not included in the data to maintain privacy in this study. The descriptive statistic like age was presented as Mean $\pm$ SD. Frequency and percentages were calculated for religion, education, socioeconomic status, current mode of contraception, parity, gender of children, number of live children, current mode of contraception, parity, and previous mode of delivery and history of any complication in previous delivery. Questions regarding awareness and perceptions of participants towards bilateral tubal ligation were answered as Yes or No. Frequency and percentages were calculated for answer to each question.

Factors age groups, parity, religion, education, income, gender of live children, number live children, previous mode of delivery, BTL procedure done by any close relative, history of complications in previous delivery, and plan for more children were controlled at level of analysis through stratification. Post stratification chi-square test was applied keeping p-value < 0.05 as significant.

## Results

Total number of patients was 365; mean age of our study population was 29.71 $\pm$ 5.96 years. 172(47.1%) participants had already reached their desired family size. Most of the women were Muslims, not very well educated, belonged to middle socioeconomic class and used withdrawal or condoms as current mode of contraception as shown in table I. The results of our study showed that 289 (79.2%) women did not plan to have BTL for contraception even after completion of their family and only 76(20.8%) said that they might have BTL in future.

**Table I: Demographical characteristics of the study population.**

| Variables                                 | n (%)       |
|---|-------------|
| <b>Age Groups</b>                         |             |
| 18-25                                     | 45(12.3%)   |
| 26-35                                     | 249(68.2%)  |
| >35                                       | 71(19.5%)   |
| <b>Religion</b>                           |             |
| Islam                                     | 302 (82.7%) |
| Hindu                                     | 36 (9.9%)   |
| Christian                                 | 27 (7.4%)   |
| <b>Educational Level</b>                  |             |
| Matric                                    | 166(45.5%)  |
| Inter                                     | 129(35.3%)  |
| Graduation                                | 70(19.2%)   |
| <b>Monthly Income</b>                     |             |
| <20000/Month                              | 133(36.4%)  |
| 20000-50000/Month                         | 173(47.4%)  |
| >51000/Month                              | 59(16.2%)   |
| <b>Both Girl and Boy</b>                  |             |
| Yes                                       | 246(67.4%)  |
| No  | 119(32.6%)  |
| <b>Current Mode of Contraception Used</b> |             |
| None                                      | 29(7.9%)    |
| Withdrawal/Condoms                        | 214(58.6%)  |
| Pills/Injections                          | 65(17.8%)   |
| Capsules/IUCD                             | 57(15.6%)   |

More than half of women, 186(51.0%) in our study population had 3 live children, normal vaginal delivery (NVD) occurred in 271(74.2%) and 267(73.2%) patients did not suffer from any type of obstetrical complications in their pregnancies as shown in table II.

**Table II: Frequency of obstetrical variables, mode of delivery and history of any complications in previous deliveries. (n=365)**

| Variables  | n (%)      |
|--|------------|
| <b>Parity</b>  |            |
| 1  | 24(6.6%)   |
| 2  | 38(10.4%)  |
| 3  | 191(52.3%) |
| >3   | 112(30.7%) |
| <b>No of Live Children</b>                           |            |
| 0  | 2(0.5%)    |
| 1  | 25(6.8%)   |
| 2  | 62(17.0%)  |
| 3  | 186(51.0%) |
| 4  | 90(24.7%)  |
| <b>Previous Mode of Delivery</b>                     |            |
| Normal Vaginal Delivery (NVD)                        | 271(74.2%) |
| C section  | 61(16.7%)  |
| NVD And C section                                    | 33(9.0%)   |
| <b>History of Complications in Previous Delivery</b> |            |
| Yes  | 98(26.8%)  |
| No   | 267(73.2%) |

A significant proportion of women 282(77.26%) had already heard about BTL, and believed that it could cause negative effects on intercourse 267 (73.2%), menstrual abnormalities 281(77%) and weight gain

254(69.6%). Moreover 309(84.7%) women thought that BTL was 100% reliable method for contraception with no chances of failure. Women who had both a girl and a boy child were more open towards the idea of having BTL in future as shown in table III.

**Table III: Awareness and perceptions of participants towards bilateral tubal ligation**

| Questions   | Yes n(%)    | No n(%)     |
|---|-------------|-------------|
| Do you plan to have more babies?                            | 172(47.1%)  | 193(52.9%)  |
| Do you have boys and girls both?                            | 246(67.4%)  | 119(32.6%)  |
| Have you ever heard about BTL as a method of contraception? | 282(77.26%) | 83(22.74%)  |
| Does anyone in your close relatives have done BTL?          | 97(26.6%)   | 268(73.42%) |
| Do you think BTL can negatively affect your sexual life?    | 267 (73.2%) | 98 (26.8%)  |
| Do you think it can cause cancer?                           | 43(11.8%)   | 322(88.2%)  |
| Do you think it can cause menstrual abnormalities?          | 281(77%)    | 84(23%)     |
| Do you think it can cause weight gain?                      | 254(69.6%)  | 111(30.4%)  |
| Do you think it can cause pregnancy outside uterus?         | 172(47.1%)  | 193(52.9%)  |
| Do you think it is 100% reliable?                           | 309(84.7%)  | 56(15.3%)   |

The study found that age (p-value 0.045), higher level of education (p-value <0.001), better socioeconomic status (p-value 0.009), no complications in previous pregnancies (p-value 0.031), BTL procedure in any close relative (p-value <0.001), having both gender live babies (p-value 0.007) and completion of desired family size (p-value <0.001) had a positive correlation with plan to have BTL in future. However, effect of religion, parity, number of live children, previous mode of delivery did not have any significant correlation with desire to have BTL in future (p-value >0.05) as shown in table IV.

## Discussion

BTL is an effective, reliable and permanent method for female sterilization. Because it is irreversible in most of the cases many women don't opt for this method of contraception. The study shows that mean age of our study population was 29.71±5.96 years. Although significant proportion of women 282(77.26%) had already heard about BTL majority 289(79.2%) did not plan to have BTL for family planning even after achieving their desired family size. This could be due to lack of proper detailed counseling by the treating doctors. The physicians should make an effort to provide accurate yet understandable information to women visiting them. All

the advantages and disadvantages of BTL should be compared with non-permanent long-acting methods of contraception. A researcher has reported that repeat C-section as commonest indication for tubal ligation. If women and their partners are counseled before their second or third C-sections patients are likely to opt for this procedure.<sup>10</sup>

**Table IV: Effect of age, parity, religion, education level, monthly income, number of live children, previous mode of delivery, current mode of contraception, gender of live children, experience of BTL in close relatives on willingness for BTL in future.**

|                                  | Do you plan to have BTL in future? |             |            | p-value |
|----------------------------------|------------------------------------|-------------|------------|---------|
|                                  | Yes n(%)                           | No n(%)     | Total      |         |
| <b>Overall</b>                   | 76(20.8%)                          | 289 (79.2%) |            | -       |
| <b>Age Groups</b>                |                                    |             |            |         |
| 18-25 years                      | 4(8.9%)                            | 41(91.1%)   | 45(12.3%)  | 0.045   |
| 26-35 years                      | 52(20.9%)                          | 197(79.1%)  | 249(68.2%) |         |
| >35 years                        | 20(28.8%)                          | 51(71.8%)   | 71(19.5%)  |         |
| <b>Parity</b>                    |                                    |             |            |         |
| 1                                | 1(4.2%)                            | 23(95.8%)   | 24(6.6%)   | 0.138   |
| 2                                | 9(23.7%)                           | 29(76.3%)   | 38(10.4%)  |         |
| 3                                | 38(19.9%)                          | 158(80.1%)  | 191(52.3%) |         |
| ≥4                               | 28(25%)                            | 84(75%)     | 112(30.7%) |         |
| <b>Religion</b>                  |                                    |             |            |         |
| Islam                            | 58(19.2%)                          | 244(80.8%)  | 302(82.7%) | 0.226   |
| Hindu                            | 11(30.6%)                          | 25(69.4%)   | 36(9.9%)   |         |
| Christian                        | 7(25.9%)                           | 20(74.1%)   | 27(7.4%)   |         |
| <b>Education</b>                 |                                    |             |            |         |
| Matric                           | 13(7.8%)                           | 153(92.2%)  | 166(45.5%) | <0.001  |
| Intermediate                     | 15(11.6%)                          | 114(88.4%)  | 129(35.3%) |         |
| Graduation                       | 48(68.6%)                          | 22(31.4%)   | 70(19.2%)  |         |
| <b>Monthly Income</b>            |                                    |             |            |         |
| <20000/ Month                    | 24(18%)                            | 109(82%)    | 133(36.4%) | 0.009   |
| 20-50000/ Month                  | 31(17.9%)                          | 142(82.1%)  | 173(47.4%) |         |
| >51000/ Month                    | 21(35.6%)                          | 38(64.4%)   | 59(16.2%)  |         |
| <b>No of Live Children</b>       |                                    |             |            |         |
| 0                                | 0(0%)                              | 2(100%)     | 2(0.5%)    | 0.098   |
| 1                                | 1(4%)                              | 24(96%)     | 25(6.9%)   |         |
| 2                                | 11(17.7%)                          | 51(82.3%)   | 62(17.0%)  |         |
| 3                                | 39(21%)                            | 147(79%)    | 186(51.0%) |         |
| ≥4                               | 25(27.8%)                          | 65(72.2%)   | 90(24.7%)  |         |
| <b>Previous Mode of Delivery</b> |                                    |             |            |         |
| Normal Vaginal Delivery (NVD)    | 50(18.5%)                          | 221(81.5%)  | 271(74.2%) | 0.149   |
| C section                        | 16(26.2%)                          | 45(73.8%)   | 61(16.7%)  |         |
| NVD And C section                | 10(30.3%)                          | 23(69.7 %)  | 33(9.0%)   |         |
| <b>BTL Done by Relative</b>      |                                    |             |            |         |
| Yes                              | 46(47.4%)                          | 51(52.6%)   | 97(7.9%)   | <0.001  |
| No                               | 30(11.2%)                          | 238(88.8%)  | 268(58.9%) |         |

| <b>History of Complications in Previous Delivery</b> |           |            |            |        |
|--|-----------|------------|------------|--------|
| Yes  | 13(13.3%) | 85(86.7%)  | 98(26.9%)  | 0.031  |
| No   | 63(23.6%) | 204(76.4%) | 267(73.25) |        |
| <b>Both Girl and Boy</b>                             |           |            |            |        |
| Yes  | 61(24.8%) | 185(75.2%) | 246(50.7%) | 0.007  |
| No   | 15(12.6%) | 104(87.4%) | 119(32.6%) |        |
| <b>Plan for More Children</b>                        |           |            |            |        |
| Yes  | 19(11%)   | 153(89%)   | 172(47.1%) | <0.001 |
| No   | 57(29.5%) | 136(70.5%) | 193(52.9%) |        |

In our research maximum, 249(68.2%) women belonged to 26-35years age group, 302(82.7%) were Muslims, 166(45.5%) were educated only up to matric and 173(47.4%) belonged to middle socioeconomic group. These findings are roughly similar to a study done in South Africa and Pakistan.<sup>11-12</sup> However, a researcher from Peshawar reported 46.7% females were using injectables for contraception.<sup>13</sup> Normal vaginal delivery (NVD) was commonest mode of delivery 271(74.2%), followed by C-section 61(16.7%). Caesarean deliveries were found to be 19.6% in Pakistan.<sup>14</sup>

Obstetrical history showed that 90(24.7%) had more than 3 live children and 267(73.2%) did not have any complications in previous delivery. Similar findings have been stated elsewhere.<sup>14</sup>

We found that 29(7.9%) women denied using any form of contraception, while 214(58.6%) used withdrawal/condoms. Another study from Pakistan reported most common method of contraception was condoms (30.5%) followed by withdrawal (20.4%).<sup>12</sup>

Awareness and knowledge about various contraceptive methods, including BTL is essential for making an informed choice about family planning. This study found out that 267(73.2%) believed that BTL would negatively affect their sexual life. In a study done by Makhathini BS et al only 18.7% thought BTL would have negative effect on their sexual life.<sup>11</sup> Smith et al has reported increased level of mental and physical relief and benefits for sexual life following tubal ligation.<sup>15</sup>

An overwhelming majority, 281(77%) of women in current study feared that menstrual irregularities may occur after BTL. Many women, 254(69.6%) had a misconception that BTL could cause weight gain. Commonest misconception was about the reliability of this procedure. Another concerning finding was that 309 (84.7%) women thought that BTL was 100% reliable method of contraception and they could never get pregnant afterwards. This may result in delayed presentation at health care facility in case of pregnancy/ectopic pregnancy. Another study done in

South Africa found that only 51.9% thought that BTL was 100% effective.<sup>11</sup> The physicians should emphasize to correct these misconceptions as according to the CREST study, the 10-year failure rate is 18.5 per 1000 procedures.<sup>16</sup> We noted that large number of women rightly knew about low risk of cancer 322(88.2%) and ectopic pregnancy 193(52.9%) after BTL.

Upon further analysis for impact of various factors on future plan for BTL, we found that highest number of women 20(28.8%) who said YES to get BTL were >35 years, while only 52(20.9%) were 26-35 years and 4(8.9%) women belonged 18-25 years age group. This difference was statistically significant (p-value 0.045). Another study has also reported that most of Pakistani women go for tubal ligation after 30 years.<sup>17</sup> BTL is used by younger women in some countries who feel they want small family size have achieved their desired number of children.<sup>18</sup> This is not the case in Pakistan because most people want to have larger families, female sterilization occurs too late to have great beneficial effects on women population control and health.

Our study found out that 11(30.6%) Hindu women wanted to have BTL in future followed by Christian 7(25.9%), and Muslims 58(19.2%), however the results were not statistically significant (p-value 0.138). This highlights the importance of rigorous counseling of all potential candidates for BTL irrespective of their religion. Similar results have been reported by other researchers.<sup>11,19</sup>

Educational status and socioeconomic status showed a statistically significant association with future plan for BTL, p-value <0.001 and 0.009 respectively. This highlights the need for better detailed counseling sessions for undereducated poorer women, so they can make an informed decision in future. Other studies done in Pakistan showed that economically stable and educated women were more likely to have BTL.<sup>17,19,20</sup>

Other factors like no complications in previous pregnancies (p-value 0.031), BTL procedure in any close relative (p-value <0.001), having both gender live babies (p-value 0.007) and completion of desired family size (p-value <0.001) also had a positive correlation with plan to have BTL in future. However, parity, previous mode of delivery and number of live children did not seem to effect women's decision for BTL as shown in table IV.

Our study has a few limitations. Firstly it was a single center study. Secondly only women were included in this research and no responses involved the influence of

their husbands regarding decision for BTL as a method for contraception.

## Conclusion

Our study highlights the current gaps in accurate knowledge about BTL in Pakistani women of reproductive age. Immediate state level efforts must be made in order to improve knowledge among women and this procedure should be subsidized so larger number of women can afford it.

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