

# The Incidence of Female Sterilization in a Selected Public Hospital in Jamaica

<sup>1</sup>Damion Grant, <sup>2</sup>Tazhmoye Crawford, <sup>3</sup>Dorrett McLean

The National Family Planning Board, Kingston, Jamaica

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**Abstract:** The goal of the National Family Planning Board (NFPB) is that, all Jamaicans achieve optimal sexual and reproductive health. In addition, one of NFPB's strategic outcomes involves improving contraceptive commodity security which refers to the increased access to contraceptive methods for all persons regardless of age and sexual orientation. To achieve this strategic outcome, permanent, long-term and short-term contraceptive methods have been promoted for women who wish to discontinue or delay childbearing. To ascertain the success of this contraceptive method, the NFPB has been seeking to monitor the number of acceptors of sterilization through the Hospital Monthly Summary Report (HMSR) and the sterilization data collected from The Victoria Jubilee Hospital (VJH) in Jamaica.

This research paper is a comprehensive documentation of the female sterilization procedures collected from the VJH during the period January 2008 to December 2014. The results of the study showed that most women accepted sterilization between the ages of 30-39 and waited until they had between three and five children.

**Keywords:** Hospital Monthly Summary Report (HMSR), Victoria Jubilee Hospital (VJH), National Family Planning Board (NFPB).

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## I. INTRODUCTION

A report released by the United Nations (2013) highlights that female sterilization, sometimes referred to as tubal ligation, is reported as the world's most popular contraceptive method. The popularity of the method, as illustrated by the aforementioned report, is normally found among women between the age group of 15- 49 years who are married or in stable union. In Latin America and the Caribbean, female sterilization accounts for about 26% of the modern contraceptive method mix (United Nation, 2013).

In Jamaica, female sterilization, which is colloquially known as 'tying off', is used by approximately ten percent (10%) of women in stable unions (RHS, 2008). It is also one of the leading family planning methods for couples who desire smaller families. Its share in the contraceptive method mix, for women in stable unions, has declined from 21% in 1983 to 14% in 2008 when the last Reproductive Health Survey (RHS) was conducted. The decline has been linked to increase in knowledge about other long-acting reversible methods (LAM) that have become increasingly available over the past decade (RHS, 2008). The RHS (2008) revealed some important information on female sterilization:

1. Female sterilization was more prevalent with older women who have had their desired number of children.
2. Women who were located in Health Region 1 (South-East Regional Health Authority) were more likely to accept sterilization than women in the other three regions; namely, North-East Region, Western Region and Southern Region.
3. Sterilized women tend to be in more stable relationships than their unsterilized counterpart.
4. Sterilized women were more likely to attend church when compared with their unsterilized counterparts.
5. The average age of women who were acceptors of tubal ligation was thirty one (31) years.
6. The average number of live births for women accepting sterilization was 4.3 children.

Other important results arising from the Reproductive Health Survey regarding sterilization was that younger women (women less than 30 years) who had the surgery were more likely to regret the decision than women over the age of 30. In addition, those who received counselling before making the decision were less likely to regret the decision to have the procedure performed. Dissatisfaction with sterilization was associated with low education level, being in common-law unions and also geographical location.

Finally, the most stated reasons for not wanting to have tubal ligation done were:

1. age (some women felt they were too young to do the procedure)
2. fear of complications that may accompany the surgery
3. opposition from their spouse
4. uncertainty about the desire to have children in the future

#### ***Importance of Female Sterilization:***

Female sterilization is important, not only because it provides more than 99% protection from pregnancy, but it offers other benefits to family planning program managers and users of family planning methods. Sterilization, when accepted by a woman who has achieved her desired family size, may satisfy her contraceptive needs for the remainder of her reproductive life. The average sterilization age of females in Jamaica is approximately 31 years (RHS, 2008). Therefore, a permanent contraceptive method eases a woman's burden of continuously using short-acting birth control and frees the family planning program from many years of service that would span the remainder of her reproductive life (Rahman, 2011). Notably, a Family planning (FP) programme that focuses on a permanent method, such as female sterilization, would be very effective in spacing and limiting births. Moreover, permanent methods (PM) help to reduce the financial encumbrance of procuring short-acting methods.

The goal of the National Family Planning Board (NFPB) is that, all Jamaicans achieve optimal sexual and reproductive health. In addition, one of NFPB's strategic outcomes involves improving contraceptive commodity security which refers to the increased access to contraceptive methods for all persons regardless of age and sexual orientation. To achieve this strategic outcome, permanent, long-term and short-term contraceptive methods have been promoted for women who wish to discontinue or delay childbearing. To ascertain the success of this contraceptive method, the NFPB has been seeking to monitor the number of acceptors of sterilization through the Hospital Monthly Summary Report (HMSR) and the sterilization data collected from The Victoria Jubilee Hospital (VJH).

This research paper is a comprehensive documentation of the female sterilization collected from the VJH during the period January 2008 to December 2014. This report explores the following questions:

1. What is the average age of women who accept sterilization?
2. Are there any significant differences in the average age for sterilization acceptance over the seven year time period (2008-2014)?
3. Is there any association between the age of females who accept sterilization and the number of pregnancies and living children?
4. What contraceptive methods were females using before opting for sterilization?

## **II. METHODOLOGY**

The information presented in this research paper was obtained from the monthly sterilization data submitted to the NFPB from the Victoria Jubilee Hospital(VJH), being procedures performed over the period 2008 (the data of the last Reproductive Health Survey) to 2014. Over the seven-year period (2008-2014), a total of nine hundred and thirty one (931) procedures were performed. The data collected from VJH is a comprehensive representation of all the sterilized females except those who received tubal ligation after performing caesarean section (C-section). Information was collected via a one-page, four-item informed consent agreement for acceptors of tubal ligation which the client executed prior to accepting the tubal ligation procedure. Documentation of the procedure via special VJH health recording-Fertility Control Unit was the confirmation mechanism by the VJH health personnel. The information was then placed into a database and submitted to the NFPB upon request.

### III. RESULT

Nine hundred and thirty one (931) cases of tubal ligation procedure were performed at the Victoria Jubilee Hospital during the period January 2008 to December 2014. An overview of the number of sterilization procedures that were done in each year is provided in Table 1.

**Table 1: Table showing the distribution of sterilized women from 2008-2014**

Year	Number of Sterilized Female	Percentage (%)
2008	170	18%
2009	107	12%
2010	168	18%
2011	133	14%
2012	142	15%
2013	69	7%
2014	142	15%

Table 1 shows that 18% (170) procedures were done in 2008, 107 (12%) in 2009, 168 (approximately 18%) procedures in 2010, 133 (14%) in 2011, 142 (15%) were performed in 2012, and 142 (15%) in 2014. A total of 69 (7%) procedures were performed in 2013. The unavailability of sterilization equipment and insufficient operating theatre to meet the needs of the women who wanted to do the operation were the explanations given by health care providers at VJH who are responsible for performing the procedures for the reduction in procedures in 2013.

A percentage analysis of the sterilized females by age group revealed the subsequent results. Ten percent (10%) of the females were between fifteen (15) to twenty-nine (29) years. Most (66% or 609) of the sterilized females belonged to the thirty (30) to Thirty- nine (39) age group. The remaining twenty four percent (24%) were above the age of forty (40) years. Specifically, twenty (20%) percent were between forty (40) and forty-four (44) years and approximately four percent (4%) were between forty-five (45) and forty-nine (49) years of age.

#### **Parity:**

Parity, within this context, refers to the number of living children to whom a female gives birth. The minimum number of living children observed was zero; whereas, the maximum number of living children observed was sixteen (16). Overall, more than half of the sterilized women (60%) had between three (3) to five (5) living children. Additionally, approximately twenty-one percent (21%) gave birth to two (2) or less children. Seventeen percent (17%) had between six (6) and eight (8) living children; while, the remaining two percent (2 %) had more than nine (9) living children (Table 2).

**Table 2: Table showing the percentage distribution of the number of Living Children**

Number of Living Children	Frequency	Percent (%)
0-2	193	21%
3-5	560	60%
6-8	155	17%
9-11	18	2%
12-14	1	0.1%
15-17	1	0.1%

#### **Gravidity:**

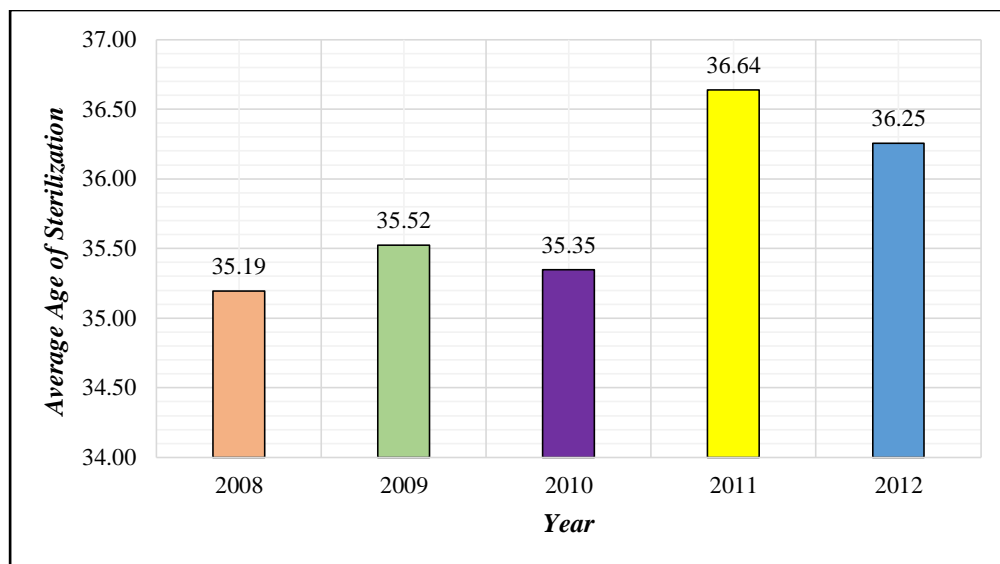
The term Gravidity is defined as the number of times a woman become pregnant even if the pregnancy was interrupted or resulted in a live birth. The minimum number of pregnancy over the seven (7) year period was zero (0), while the maximum number was sixteen (16). A percentage distribution of the number of pregnancy during the period revealed that: above half (56%) of the acceptors of sterilization had between three (3) and five (5) pregnancies. Likewise, about seventeen percent (17%) had two (2) or less pregnancies. The remainder of the sterilized females (approximately 26%) had more than six (6) pregnancies (Table 3).

**Table 3: Table showing the percentage distribution of the number of pregnancies**

Number of Pregnancies	Frequency	Percent (%)
0-2	160	17.3
3-5	524	56.6
6-8	207	22.4
9-11	32	3.5
12-14	2	0.2
15-17	1	0.1

**Age Distribution of Sterilized Females:**

The age of the sterilized women who accepted the procedure at VJH ranged from eighteen (18) years to forty- nine (49) years. Generally, the average age of all the females who did the procedure is 35.76 (SD=4.92). A comparison of the average sterilization age over the period indicates that there was a fluctuation of the typical sterilization age (Figure 1). To evaluate whether the fluctuation in the average age over time was significant, an Analysis of Variance (ANOVA) test was conducted. The findings revealed an overall non-significant change in the average age over the time period 2008 to 2012 [F (4, 714) = 2.35, p=0.53].



**Fig. 1: Graph showing the average age of sterilization over the 5 year time period.**

**Gravidity (Pregnancies) by Age Group:**

A cross-tabulation was performed between the age of the sterilized women and the number of pregnancies. The main findings indicate that most (35% or 327) of the sterilized women were between thirty (30) and thirty-nine (39) and had three (3) to five (5) pregnancies. Furthermore, three out of twenty-five (12%) of the women who accepted sterilization were between the ages of forty (40) and forty-four (44) and also had three (3) to five (5) pregnancies. Finally, approximately eleven percent (11%) of the sterilized women were between the ages thirty (30) and thirty-nine (39) years and had two or less pregnancies (Table 4).

**Table 4: Table showing the cross-tabulation results between age and number of pregnancies**

Age Group	Number of Pregnancies											
	0-2		3-5		6-8		9-11		12-11		15-17	
	N	%	N	%	N	%	N	%	N	%	N	%
15-29	21	2.30%	60	6.50%	12	1.30%	1	0.10%	0	0.00%	0	0.00%
30-39	99	10.70%	327	34.50%	155	16.80%	22	2.40%	2	0.20%	0	0.10%
40-44	30	3.20%	112	12.10%	35	3.70%	7	0.80%	0	0.00%	0	0.00%
45-49	9	1%	6	2.60%	6	0.60%	2	0.20%	0	0.00%	0	0.00%

**Average Number of Pregnancies by Year and by Age:**

Coupled with the cross-tabulation between age and pregnancy, it is important to investigate the typical number of pregnancies obtained by women accepting sterilization. The average number of pregnancies observed was 4.41 (SD=1.98). An ANOVA test was conducted to determine if the average number of pregnancies differed by year. The test revealed that there was no significant differences among the average pregnancies over the seven (7) year period. When the average number of pregnancies were compared by age group, the finding revealed that sterilized females between the ages of fifteen (15) and twenty-nine (29) had significantly less pregnancies than those in the age group 30-39. No significant changes were observed in the other age groups.

**Parity (living Children) by Age Group:**

A cross-tabulation was also performed on the number of living children of sterilized women and their age. As identified with Gravidity, most (approximately 39%) of the females in the study were accepting sterilization when they were between the ages of thirty (30) and thirty-nine (39) years and had three (3) to five (5) children. Moreover, about thirteen (13%) of the females accepted sterilization when they had two or less children and were between the previously mentioned age category. A smaller percentage (12%) from the same age category accepted sterilization when they had six (6) to eight (8) living children. Almost thirteen (13%) fell within the age group 40- 44 and had 3-5 children. The remaining percentages were distributed among the other categories illustrated in Table 5.

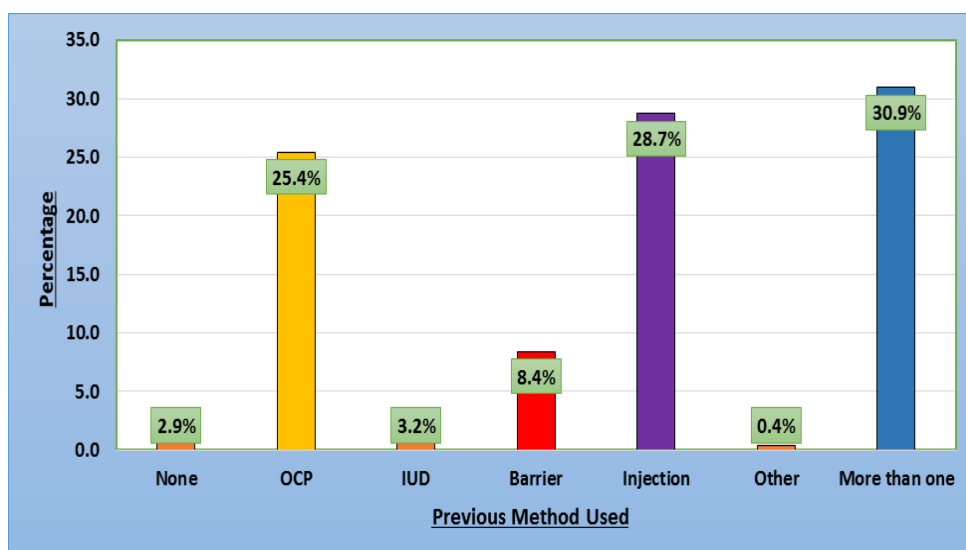
**Table 5: Table showing the cross-tabulation results between age and number of Living Children**

Age Group	Number of Living Children											
	0-2		3-5		6-8		9-11		12-11		15-17	
	N	%	N	%	N	%	N	%	N	%	N	%
15-29	22	2.40%	62	6.70%	10	1.10%	0	0.00%	0	0.00%	0	0.00%
30-39	119	12.90%	357	38.60%	114	12.30%	14	1.50%	1	0.10%	1	0.10%
40-44	39	4.20%	116	12.50%	27	2.90%	3	0.30%	0	0.00%	0	0.00%
45-49	12	1%	24	2.60%	4	0.40%	1	0.10%	0	0.00%	0	0.00%

**Average Number of Living Children by Year and by Age:**

The sterilized women in the sample had, on average, 4.02 (1.82) living children. Analysis of Variance of the living children by year revealed that there were no significant differences. However, similar to the number of pregnancies by age group, the average number of living children differed significantly by age group (F(3, 922)=4.57, p=0.05). Specifically, younger sterilized women (15-29 years) had less living children than their older counterparts (especially those in the age group 30-39).

**Previous Method of Contraception:**



**Fig. 2: Table showing the previous method used by sterilized females**

A central part of the sterilization analysis is to explore the contraceptive method(s) females were using before sterilization was accepted. The analysis shows that most of the women (30.9% or 224) used more than one method of contraceptive. In addition, about twenty-nine percent (29% or 208) were using injection. A smaller percentage (25.4%) were using Oral Contraceptive Pills (OCP). Eight percent (8%) were using a barrier method (condom). The remaining females were either using no methods (2.9%) or other methods (0.4%). An illustration of the above results is displayed in Figure 2.

#### **IV. DISCUSSION**

Although the data for this research was collected from one central hospital in urban Jamaica, the results garnered still highlight some significant information regarding sterilization that can have far reaching application. The results indicated that the typical age at which females accepted sterilization as a method of contraception was approximately thirty six years. This is slightly greater than the age of thirty one (31) identified in the Reproductive Health Survey (RHS, 2008). What can be derived from this result is that women are waiting until they are in their thirties to accept sterilization as a method of contraception. As indicated by the fact that most women in the study accepted sterilization between the ages of 30-39.

Age was not the only factor identified as a determinant for sterilization. The number of pregnancies and living children were also factors that determined when a female would accept sterilization. As stated in the results, most women were not only waiting until they were in their thirties but were also waiting until they had between three and five children. Importantly, the average number of pregnancies and living children that sterilized women had were about four (4) pregnancies and living children respectively. These results are not only confirmed by local data on sterilization (RHS, 2008) but is also consistent with international trends.

While the number of pregnancies and living children did not change over time, one startling result was observed. This result pointed to the fact, that younger (15-29) sterilized women had fewer children when compared with their older counterparts (30+). Many explanation could be given for this finding; for example, factors such as socioeconomic status, educational background, relationship status or health conditions should be considered when interpreting this result. However, these factors were not part of the investigative element of this study.

The final fundamental result observed was that most of the sterilized women used more than one contraceptive methods before accepting sterilization as a method. This is imperative to note because it highlights a point made earlier that sterilization reduces the burden of contraceptive procurement for both the users and Family Planning (FP) managers. That is, women who have accepted sterilization would not have to think about the use of any other short to long-term contraceptive (except condoms for protection against STIs) for the duration of her reproductive life. In addition, FP program managers would have one less FP user for which to procure contraceptives, hence likely reducing the cost on contraceptive.

#### **V. RECOMMENDATIONS**

The study highlighted some key findings as it relates to factors that influence a woman's decision to accept sterilization. The main factors observed from this study, were age, number of pregnancies and number of living children. As a result, a major recommendation is that sterilization can be promoted as a method of choice for females who are above thirty and have reached their desired allotment of children. In addition, it can be promoted as a method that can give full and permanent protection against pregnancy and reduces the burden of having to constantly rely on local clinics or family planning providers for supply of contraceptives.

Sterilization can also be promoted to younger contraceptive users but the "regret factor" must be taken into consideration when this is done. As highlighted by the national RHS (2008), women who were less than thirty were more likely to regret the decision to accept sterilization than older women (greater than 30). Therefore, counselling should be a major part of any sterilization program. The counselling should adequately prepare women for the procedure so that the "regret factor" can be significantly reduced. Program managers should also consider all factors such as education background, religious affiliation, socioeconomic status and geographical location when promoting sterilization as a method of choice for women.

#### **ACKNOWLEDGEMENT**

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#### REFERENCES

- [1] A.D.A.M., Inc (2010). Birth Control In-Depth Report. Retrieved from <http://www.nytimes.com/health/guides/specialtopic/birth-control-and-family-planning/print.html>
- [2] Bertrand. J, Sullivan. T, Knowles. E, Zeeshan. M & Shelton. K (2014). Contraceptive Method Skew and Shifts in Method Mix in Low- and- Middle-Income Countries. *International Perspectives on Sexual and Reproductive Health*, 40 (3): 144-153.
- [3] Hatcher. R, Trussell. J, Nelson. A, Cates. W, Kowal. D & Policar. M (2011). *Contraceptive Technology*. Contraceptive Technology Communication, New York, Inc. Ardent Media Inc.
- [4] Kessel. E & Mumford. S (1982). Potential Demand for Voluntary Female Sterilization in the 1980s: The Compelling Need for Nonsurgical Method. *Modern Trends*, 37 (6), 725-733.
- [5] Rahman. M (2011). A Potential Contraceptive method mix for the Ethiopian Family Planning Program. Retrieved from <http://uaps2011.princeton.edu/papers/111048>
- [6] Serbanescu. F, Ruiz. A & Suchdev. D (2008). *Reproductive Health Survey Jamaica (RHS)*. Kingston. The National Family Planning Board.
- [7] United Nations, Department of Economic and Social Affairs, Population Division (2015). *Trends in Contraceptive Use Worldwide 2015 (ST/ESA/SER.A/349)*
- [8] United States Agency for International Development (2012). *Synthesis of Evidence on Female Sterilization collected for Experts Consultation*. Retrieved from <http://www.respond-project.org/pages/bellagio/Overview-for-3-evidence-pieces-final-8-22-12.pdf>
- [9] Wickstrom, J & Jacobstein, R. 2011. Contraceptive Security: Incomplete without Long-Acting and Permanent Methods: 4 Advocacy Brief, *Stud Fam Plann*: 42(4):291-8
- [10] World Health Organization (2007). *Family Planning: A Global Handbook for Providers*