Impaired Fertility in Jamaica: Evidence from Fertility Surveys

SR Priestley

ABSTRACT

Objective: *It has been a long held belief that increased contraceptive use is primarily responsible for lowered fertility in Jamaica since the 1970s. However, historically, subfecundity has played a major role in suppressing fertility rates. In order to reveal the prevalence and trend in fertility impairment, a study was conducted using data from the 1989, 1993, 1997 and 2002 reproductive health surveys.*
Methods: *Bivariate analysis was used to highlight women's lack of childbearing in the five-year period prior to the survey, and the reasons they provide for their inability to become pregnant. Using the impairment typology of Chandra and Stephen (1998), cross-tabulations were used to present the sociodemographic background of women determined to experience fertility impairment.*
Results: *The data reveal that 28 per cent of sexually experienced women aged 15−49 years in 1989 and 31 per cent in 2002 reported some form of fecundity impairment. Impairment is largely due to subfecundity resulting from miscarriage or abortion, rather than failure to conceive. Women with impairment were predominantly found in married and common-law unions, were mothers, were 30 years or older, had experienced fetal loss, were working, and did not want an additional child.*
Conclusion: *As childbearing and increasing age raise the prevalence of impairment, many women are unlikely to meet their family building goals. We therefore recommend that health screening for conditions related to infertility be introduced.*

Keywords: Fertility, impairment; infertility, sterility, Jamaica

La Fertilidad Alterada en Jamaica: Evidencias de Encuestas sobre Fertilidad

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RESUMEN

Objetivo: *Por mucho tiempo se ha creído que el aumento en el uso de anticonceptivos es el principal responsable de la disminución de la fertilidad en Jamaica a partir de la década del 70. Sin embargo, históricamente, la subfecundidad ha jugado un papel fundamental en suprimir las tasas de fertilidad. Con el fin de mostrar la prevalencia y la tendencia en la alteración de la fertilidad, se realizó un estudio usando datos de encuestas sobre salud reproductiva, realizados en 1989, 1993, 1997 y 2002.*
Métodos: *El análisis bivariado se usó para resaltar la falta de embarazos en las mujeres en el periodo de cinco años previo a la encuesta, y las razones que ellas aducen con respecto a su incapacidad para salir embarazadas. Tomando por base la tipología de las alteraciones de Chandra y Stephen (1998), se usaron tabulaciones transversales para presentar el marco sociodemográfico de las mujeres que enfrentaban alteraciones de la fertilidad.*
Resultados: *Los datos revelan que el 28 por ciento de las mujeres con experiencias sexuales y edades de 5 a 49 años, en 1989, y 31 por ciento en 2002 reportaron alguna forma de alteración de la fecundidad. En gran medida, las alteraciones se deben a la subfecundidad producida como consecuencia de abortos espontáneos o provocados, más bien que a no poder concebir. Las mujeres con alteraciones de la fertilidad eran predominantemente casadas o vivían en unión consensual; eran madres; tenían 30 años de edad, o más; habían experimentado la pérdida de un feto; estaban trabajando, y no querían tener otro hijo.*

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Conclusión: *A medida que los embarazos y la edad aumentan la prevalencia de la alteración de la fertilidad, muchas mujeres presentan una menor probabilidad de alcanzar sus metas de constituir una familia. Por lo tanto, se recomienda que se introduzcan tamizajes de las condiciones de salud en relación con la infertilidad.*

Palabras claves: Fertilidad, alteración, infertilidad, esterilidad, Jamaica

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INTRODUCTION

While there have been developments in contraceptive technology which provide couples with the flexibility to plan the timing of childbearing, or to entirely avoid childbearing, recent reproductive health survey data reflect significant proportions of women who express an inability to have the children they desire, failing to achieve their family size goals. This is of particular significance in the Jamaican context where sterility − the total inability to conceive – has historically been cited as an important factor limiting the number of children born to women of various ages and union status (1, 2). The most current estimates for 2002 indicate that just under 200 million married women worldwide were infertile, and this is more than twice the previous estimates made in the mid-eighties (3).

In examining the socio-economic context of reproduction in Jamaica in the sixties, Blake mentions sterility and spontaneous abortion as some of the reasons that fertility rates were low, compared to countries of a similar demographic profile (4). However, the control of sexually transmitted diseases since the 1950s brought about a significant decline in the level of childlessness (5). More recently, it has been suggested that the pattern of multiple sexual partners and increasing diagnoses of sexually transmitted infections (6) have led to the trend of increasing infertility and infecundity in the population. With recent data indicating that the proportions of women in Jamaica with no living children significantly exceed the world averages for the 40−44-year age group, as well as for women in the broader childbearing age group of 15−49 years (3), we found it worthwhile to examine this issue.

Though about 70 per cent of all women become mothers, we should bear in mind that biological and behavioural factors are at work in every society, operating to lower fertility from the maximum possible to total fertility levels observed. It has been demonstrated that between ages 15 and 50 years, or between the mid-teen years and menopause, fecundity declines naturally in women, particularly after the mid−30s. The factors affecting fecundity – coital inability, conceptive failure and pregnancy loss – along with family size norms, the formation of unions, sexual activity, the use of contraception, and other socio-economic factors in their own right, and in combination with each other, impact the number of children women have and their fertility desires and outcomes in particular ways in each social context. However, while current surveys may measure these variables individually, we are not aware of any attempts to analyse their combined effect in reducing overall fecundity, and therefore fertility, using available methodologies. The data from this study will identify reasons for this failure of women to achieve their family size goals and alert us to potential threats to individual health, as well as to national health and development.

METHODS

In this study, secondary data from four nationally representative reproductive health surveys are used to measure the extent of impairment among women of childbearing age, and identify the characteristics of women with this condition. The fertility studies were approved by the Ministry of Health Ethics Committee and the data were provided by the Derek Gordon Data Bank of The University of the West Indies (UWI). The questionnaire for women aged 15−49 years was one of three questionnaires in the 2002 round which included men 15−24 years, and households. Data available on women's pregnancy, birth and reproductive histories, general health and infertility status, medical care-seeking behaviour, related life events, and other sociodemographic background factors are examined using bivariate and multivariate approaches, and analysed using SPSS version 12. The primary research question sought to uncover the role played by impairment in childlessness and subfecundity.

As a result of the variety in conjugal unions of women in Jamaica, and the possibility of women being exposed to regular sexual intercourse outside of marriage, or being exposed to a series of unions of varying lengths in which regular sex is involved, women currently in married, common-law and visiting unions, in addition to women who were formerly in a union but with no current steady partner were included. Data weighted to reflect population representativeness and corrected ratios for urban and rural areas are presented.

A combination of factors is considered to be affecting the reproductive ability of women, and which is directly related to their capacity to reproduce *ie* their fecundity status. If this capacity is diminished, a woman is considered to be subfecund; if this capacity is absent altogether, a woman is considered to be infecund. These women are identified

through several questions, primary of which is the question on why the non-contracepting respondent, if sexually active, thinks she is not able to become pregnant. This variable is therefore a measure of self-reported infecundity. Essentially, respondents are those who see themselves as experiencing a problem having a child or an additional child, *ie* experiencing impairment in their fecundity.

Although the limitations of self-reported fecundity are known, women's own reports of their perceptions of their ability to become pregnant are a realistic starting point for analysis of fecundity status. The typology utilized (7, 8) is based on a hierarchy of possibilities of the outcome of pregnancy, *ie* from pregnancy being biologically impossible due to sterility, to where pregnancy is possible if no mechanical means of temporary pregnancy prevention are applied. This framework makes a clear distinction between sexually experienced women who are made sterile through surgery such as tubal ligation, which is done for contraceptive reasons, and women who report having an operation which makes pregnancy impossible, such as a hysterectomy where women are classified as having sterilizing surgery for reasons other than contraception. Women who experience impairment in their fecundity are also categorized based on whether they think pregnancy is impossible (non-surgically sterile) or difficult (subfecund), or appears to be taking a long time *ie* more than 24 months without the use of contraception. We review women classified as experiencing impairment based on their parity, union status, education, employment status, and desire for an additional child or children.

RESULTS

Women in union and who have had no births within a five-year span are considered to be either deliberately preventing births through some method of pregnancy prevention, or incapable of becoming pregnant or carrying a pregnancy to term. We found that 45 per cent of the women who had no births in 1989 were found in the youngest age group of women, with the proportion declining to 40.3 per cent in 1997, and further to 35 per cent in 2002 (Table 1). For the women over 40 years of age, the proportion with no recent childbearing activity increased from 19.7 per cent in 1989 to 28.7 per cent in 2002. When we turn to the pattern by union status, Table 2 reveals that women with no births in the last five years belong mainly to the less stable, non-residential types. This is consistently so between 1989 and 2002.

The analysis indicates that about 52 per cent of the childless women (non-contracepting, not currently pregnant) in 1989 thought that they were not able to become pregnant, compared with 50 per cent of mothers (Table 3). The proportion of childless women with this negative belief remains stable at about 50 per cent over the survey years. For mothers in 1993, 62 per cent believed that they could not become pregnant, with the proportion decreasing to 54 per cent in 1997, and then 55 per cent in 2002. Levels of uncertainty varied, but were highest in 1997. It is clear that the patterns for the youngest and oldest women are similar. For women age 25−39 years, the proportion reporting their inability to become pregnant is lower than for younger women.

Table 1: Number and per cent distribution of women 15−49 years with no birth in the five years prior to the respective surveys, by broad age group

Age group	1989		1993[1]		1997		2002	
	Number	%	Number	%	Number	%	Number	%
15−24	1685	44.7	1234	48.1	2276	40.3	2376	35.0
25−39	1345	35.6	1042	40.6	2164	38.4	2463	36.3
40 and over	743	19.7	291	11.3	1202	21.3	1952	28.7
Weighted cases	3773	100.0	2567	100.0	5642	100.0	6791	100.0

[1]Represents women 15−44 years only

Table 2: Number and per cent distribution of women 15−49 years with no birth in the last five years, by union status

Union status	1989		1993[1]		1997		2002	
	Number	%	Number	%	Number	%	Number	%
Married	620	16.4	312	12.2	933	16.5	1443	21.6
Common-law	582	15.4	428	16.7	912	16.2	955	14.3
Visiting	929	24.6	694	27.1	1450	25.7	1906	28.5
No steady partner	1642	43.5	1129	44.0	2346	41.6	2392	35.7
Weighted cases	3773	100.0	2563	100.0	5641	100.0	6696	100.0

[1]Represents women 15−44 years only

Table 3: Per cent distribution of childless women and mothers by ability to get pregnant, by age group

Able to get pregnant now	1989		1993[1]		1997		2002	
	Childless	Mothers	Childless	Mothers	Childless	Mothers	Childless	Mothers
Yes	40.0	41.2	35.3	35.0	28.8	31.1	34.8	33.5
No	51.5	49.8	49.3	62.3	49.5	53.9	48.2	54.9
Uncertain	8.5	9.0	15.5	2.7	21.7	15.0	17.0	11.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	330	1,210	278	223	531	1,818	681	2,428
15−24								
Yes	43.2	42.7	40.4	35.0	25.2	36.4	19.1	30.9
No	53.2	52.7	49.7	62.3	59.0	55.2	74.0	60.5
Uncertain	3.6	4.6	9.8	2.7	15.8	8.4	6.9	8.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	220	281	183	225	278	393	1,468	408
25−39								
Yes	35.2	45.5	27.3	39.1	36.2	35.4	36.0	39.7
No	45.1	44.8	44.3	50.6	33.2	50.0	46.5	47.9
Uncertain	19.8	9.7	25.0	10.3	30.6	14.6	17.5	12.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	91	703	88	585	229	982	458	1,269
40+								
Yes	26.3	26.1	0.0	32.3	0.0	16.9	11.3	25.4
No	63.2	61.5	100.0	63.4	95.8	61.2	59.4	61.4
Uncertain	10.5	12.4	0.0	4.3	4.2	21.9	29.2	13.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	19	226	7	93	24	443	106	971

[1]Women 15−44 years only
Note: Respondents are not using contraception, and are not pregnant at the time of the survey.

Table 4: Per cent distribution of non-contracepting childless women and mothers by reason provided for their inability to become pregnant

Reason women cannot become pregnant	1989		1993[1]		1997		2002	
	Childless	Mothers	Childless	Mothers	Childless	Mothers	Childless	Mothers
Menopause	0.5	3.4	0.0	1.6	0.8	3.5	0.9	5.2
Had an operation for medical reasons making pregnancy impossible	2.5	5.9	1.1	7.6	5.3	6.7	6.1	9.8
Used no contraception for two years, yet no pregnancy/ Told by doctor could not become pregnant	12.1	14.5	22.0	19.8	9.5	8.9	12.8	10.9
Not sexually active	74.4	46.7	72.3	59.2	79.5	65.1	79.6	62.7
Breastfeeding/Post-partum infecundable	0.0	12.5	0.0	8.7	0.0	7.5	0.0	4.7
Other	10.6	17.0	4.5	3.2	4.9	8.4	0.6	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	199	711	177	566	263	977	328	1331

[1]Women 15−44 years only
Note: Pregnant women are excluded.

Table 5: Number and per cent distribution of sexually experienced women 15−49 years by fecundity status

Fecundity status	All women 15-49 years				%			
	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002
Surgically sterile	**433**	**319**	**508**	**505**	**8.2**	**8.6**	**7.2**	**6.2**
For contraceptive reasons	379	286	480	473	7.2	7.7	6.8	5.8
For non-contraceptive reasons	54	33	28	32	1.0	0.9	0.4	0.4
Impaired fecundity	**1485**	**919**	**1917**	**2533**	**28.2**	**24.7**	**27.3**	**31.0**
Non-surgically sterile	271	189	644	911	5.1	5.1	9.2	11.1
Subfecund	984	545	1139	1486	18.7	14.6	16.2	18.2
Long interval without contraception	230	185	134	136	4.4	5.0	1.9	1.7
Fecund	**3344**	**2487**	**4586**	**5142**	**63.5**	**66.8**	**65.5**	**62.8**
Total	**5262**	**3725**	**7011**	**8180**	**100.0**	**100.0**	**100.0**	**100.0**

[1]Women 15−44 years only

It would appear that in the 25−39-year age range, women try to bring their actual childbearing in line with their desires in recognition of the fact that beyond age 40 years they have less control over fertility given declines in fecundity that occur with age.

A review of the specific reasons which prevent sexually active women from becoming pregnant is presented in Table 4. The two reasons which stand out are that women have had an operation which made pregnancy impossible, but more so, the unexplained position that they have tried to have a child for at least two years, and have not used contraception for that period, yet they have had no success. Women who have been told by their doctor that they cannot have a child have been included in this latter category (no success after two years non-contracepting) as this was introduced in 2002.

For childless women who reported in 1989 that they believed that they could not become pregnant, 12 per cent indicated that they had tried for two years without success. The proportion of mothers giving this reason was 15 per cent. The difference between the proportion of the childless and mothers stating this reason is between one and three percentage points.

Included in these tabulations are large proportions of non-contracepting women who cannot become pregnant because they are sexually inactive. In 1997 and 2002 about 80 per cent of childless women who were not using contraception, reported no current sexual activity, while only 65 per cent and 63 per cent of mothers in 1997 and 2002, respectively, reported this.

Table 6: Fecundity status of sexually experienced childless women and mothers, aged 15−49 years

Fecundity status	1989		1993[1]		1997		2002	
	Childless	Mothers	Childless	Mothers	Childless	Mothers	Childless	Mothers
Surgically sterile	**0.9**	**10.4**	**0.6**	**11.1**	**0.8**	**9.2**	**0.1**	**7.9**
For contraceptive reasons	0.7	1.1	0.6	1.0	0.5	0.4	0.1	0.5
For non-contraceptive reasons	0.2	9.3	0.0	10.1	0.3	8.8	0.0	7.4
Impaired fecundity	**14.1**	**32.5**	**11.7**	**28.8**	**11.3**	**32.0**	**12.2**	**36.1**
Non-surgically sterile	0.1	6.7	0.6	6.5	0.6	11.7	2.6	13.5
Subfecund	8.4	21.8	5.1	17.6	8.3	18.6	7.4	21.1
Long interval without contraception	5.6	4.0	6.0	4.7	2.4	1.7	2.2	1.5
Fecund	**85.0**	**57.0**	**87.9**	**60.1**	**87.9**	**58.8**	**87.8**	**56.0**
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	1227	4035	890	2835	1600	5411	1754	6427

[1]Women 15−44 years only

Table 7: Per cent distribution of fecundity impaired women aged 15−49 years

	1989	1993[1]	1997	2002
Age group				
15−19	3.5	5.3	3.8	2.3
20−24	14.1	14.4	15.2	9.9
25−29	20.3	22.5	21.3	15.9
30−34	19.2	23.6	17.9	17.5
35−39	16.3	19.6	18.0	19.2
40−44	15.0	14.6	13.8	19.7
45−49	11.6	–	9.9	15.4
Place of residence				
Urban	35.7	37.0	52.7	57.4
Rural	64.3	63.0	47.3	42.6
Parity				
0	11.6	11.2	9.5	8.4
1+	88.4	88.8	90.5	91.6
Union status				
Married	27.2	20.9	24.7	26.1
Common-law	33.2	33.0	32.0	26.8
Visiting	25.8	30.5	28.5	29.0
No steady partner	13.8	15.7	14.8	18.1
Education				
Primary or less	54.6	38.6	17.0	4.6
Secondary	35.7	51.5	75.0	60.2
Post-secondary	9.7	9.9	8.0	35.3
Employment				
Working	n.a.[2]	52.2	53.3	47.7
Not working	n.a.[2]	47.8	46.7	52.3
Experienced fetal loss				
Yes	72.8	66.9	62.5	62.2
No	27.2	33.1	37.5	37.8
Ever been pregnant				
Yes	96.4	94.8	97.8	97.1
No	3.6	5.2	2.2	2.9
Wants a child				
Yes	36.3	23.4	31.8	26.8
No	53.4	68.8	54.5	63.6
Uncertain	10.2	7.9	13.7	9.6
Ever had PID[3]				
Yes	n.a.	n.a.	n.a.	2.9
No	n.a.	n.a.	n.a.	97.1
Ever had symptom/or visited doc for STD[4]				
Yes	n.a.	n.a.	9.2	4.3
No	n.a.	n.a.	90.8	95.7
Total	100.0	100.0	100.0	100.0
Weighted cases	1,485	919	1,917	2,533

[1]Women 15−44 years only

[2]The question on participation in the labour market was not asked in 1989

[3]The question on PID was first asked in 2002

[4]Experience of visit to doctor for an STD was asked in 1997 and 2002 only.

PID = Pelvic inflammatory disease; STD = Sexually transmitted disease

Table 8: Fecundity status of sexually experienced women 15−49 years, by residential union status

Fecundity Status	Women in married and common-law unions 15−49 years				Women in visiting unions or with no steady partner 15−49 years			
	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002
Surgically sterile	**12.3**	**12.5**	**11.2**	**9.5**	**4.8**	**5.9**	**3.9**	**3.4**
For contraceptive reasons	1.5	0.8	0.5	0.6	0.6	0.9	0.3	0.2
For non-contraceptive reasons	10.8	11.7	10.7	8.9	4.2	5.0	3.6	3.2
Impaired fecundity	**31.0**	**32.5**	**34.1**	**37.8**	**20.6**	**19.3**	**21.7**	**25.0**
Non-surgically sterile	5.7	6.0	10.8	12.6	4.7	4.4	7.9	9.8
Subfecund	25.3	18.5	20.5	22.9	13.1	12.0	12.7	14.0
Long interval without contraception	6.2	8.0	2.8	2.3	2.8	2.9	1.1	1.2
Fecund	**50.4**	**55.0**	**54.7**	**52.6**	**74.5**	**74.8**	**74.4**	**71.6**
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	2403	1522	3184	3744	2859	2203	3827	4436

[1]Women 15−44 years only

Table 9: Fecundity status of sexually experienced women 15−49 years, by broad age groups

Fecundity Status	Under age 30 years				30 years and over			
	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002
Surgically sterile	**1.4**	**2.4**	**1.4**	**0.7**	**17.1**	**18.1**	**14.3**	**10.5**
For contraceptive reasons	0.2	0.4	0.3	0.0	2.1	1.6	0.6	0.7
For non-contraceptive reasons	1.2	2.0	1.1	0.7	15.0	16.5	13.7	9.8
Impaired fecundity	**19.0**	**17.3**	**20.3**	**19.7**	**40.1**	**36.1**	**35.7**	**39.8**
Non-surgically sterile	6.0	5.3	9.8	10.1	4.0	4.7	8.5	11.9
Subfecund	10.6	8.6	9.8	8.6	29.1	24.0	23.9	25.7
Long interval without contraception	2.4	3.4	0.7	1.0	7.0	7.4	3.3	2.2
Fecund	**79.6**	**80.3**	**78.3**	**79.6**	**42.8**	**45.9**	**50.1**	**49.6**
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	2962	2254	3806	3612	2300	1473	3205	4568

[1]Women 15−44 years only

Table 10: Fecundity status of sexually experienced women 15−49 years by educational attainment

Fecundity Status	Primary or less				Secondary				Post-secondary			
	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002
Surgically sterile	**12.6**	**12.6**	**12.2**	**9.2**	**4.2**	**6.3**	**6.6**	**6.7**	**6.2**	**8.5**	**5.6**	**5.1**
For contraceptive reasons	1.9	1.0	0.4	0.0	0.3	0.8	0.4	0.4	0.5	0.9	0.5	0.4
For non-contraceptive reasons	10.7	11.6	11.8	9.2	3.9	5.5	6.2	6.3	5.7	7.6	4.1	4.7
Impaired fecundity	**35.6**	**31.9**	**38.5**	**39.1**	**22.5**	**22.1**	**25.6**	**33.1**	**24.4**	**19.8**	**26.3**	**27.2**
Non-surgically sterile	4.9	5.9	11.6	9.5	5.9	4.7	9.0	11.7	3.6	4.8	7.2	10.6
Subfecund	24.7	18.2	24.0	29.3	13.2	13.6	14.9	19.6	18.2	11.1	17.7	15.0
Long interval without contraception	6.0	7.8	2.9	0.3	3.4	3.8	1.7	1.8	2.6	3.9	1.4	1.6
Fecund	**51.8**	**55.5**	**49.4**	**51.7**	**73.2**	**71.5**	**67.8**	**60.1**	**69.4**	**71.7**	**69.0**	**67.7**
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	2235	1111	838	294	2305	2140	5539	4544	581	460	581	3258

[1]Women 15−44 years only

Table 11: Fecundity status of sexually experienced women 15−49 years by employment status[2]

Fecundity status	Working			Not working		
	1993[1]	1997	2002	1993[1]	1997	2002
Surgically sterile	**10.6**	**8.1**	**7.2**	**6.7**	**6.4**	**5.4**
For contraceptive reasons	0.9	0.4	0.5	0.8	0.4	0.3
For non-contraceptive reasons	9.7	7.7	6.7	5.9	6.0	5.1
Impaired fecundity	**27.0**	**29.8**	**33.7**	**22.5**	**24.9**	**28.9**
Non-surgically sterile	3.4	9.5	11.9	6.6	8.9	10.5
Subfecund	17.1	17.9	19.8	12.3	14.6	17.0
Long interval without contraception	6.5	2.4	2.0	3.6	1.4	1.4
Fecund	**62.4**	**62.1**	**59.2**	**70.7**	**68.7**	**65.8**
Total	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	1773	3426	3583	1944	3586	4578

[1]Women 15−44 years only

[2]Questions on labour market participation were not included in the 1989 survey.

Table 12: Fecundity status of sexually experienced women 15−49 years, by fertility intention

Fecundity status	Wanted a child				Did not want/Uncertain			
	1989	1993[1]	1997	2002	1989	1993[1]	1997	2002
Surgically sterile	**0.0**	**0.0**	**0.2**	**0.0**	**0.0**	**13.5**	**0.1**	**0.0**
For contraceptive reasons	0.0	0.0	0.0	0.0	0.0	13.5	0.0	0.0
For non-contraceptive reasons	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0
Impaired fecundity	**15.0**	**12.7**	**16.8**	**16.5**	**28.3**	**28.6**	**28.8**	**33.1**
Non-surgically sterile	4.3	1.2	5.9	7.4	7.5	7.5	11.8	12.6
Subfecund	10.7	8.2	10.9	9.1	20.8	19.4	17.0	20.5
Long interval without contraception	0.0	3.3	0.0	0.0	0.0	1.7	0.0	0.0
Fecund	**85.0**	**87.2**	**83.0**	**83.5**	**71.6**	**57.8**	**71.1**	**67.0**
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weighted cases	2187	1443	2527	2779	2024	2111	3171	3798

[1]Women 15−44 years only

DISCUSSION

In 1989, about 28 per cent of sexually experienced women had impaired fecundity (Table 5). Although in the two ensuing survey years the proportion fell to 24.7 and 27.3 per cent in 1993 and 1997, respectively, by 2002, 31 per cent of women had impaired fecundity. As a result of this, from 1993, reducing proportions have been found fecund. In 1989, 8.2 per cent of all women who have had sex had undergone some form of sterilizing operation, and this proportion increased slightly to 8.6 per cent in 1993, falling to 7.2 per cent in 1997 and 6.2 per cent in 2002. Of those women who were made sterile through surgery, the overwhelming majority had done so for contraceptive reasons, with one per cent or less made sterile for other reasons, over the four survey years. While there are no studies in the Caribbean region with which to compare, the levels described here are higher than those in the USA (7). The levels of impairment found among US women aged 15−44 years between 1982 and 1995 were between 8 and 10 per cent over the period studied (7).

A clear profile of women experiencing impairment emerges. Such women were predominantly found in married and common-law unions, were mothers, were 30 years or older, had experienced fetal loss, were working, and did not want a/an additional child (Table 7).

In general, more than twice the proportion of mothers was found to have their fecundity impaired, when compared to the childless (Table 6). This was due to the extent of subfecundity among women, with the exception being childless women in 1993 who experienced long periods to conception. Far larger proportions of mothers were found to be non-surgically sterile, accounting for seven per cent of mothers and 0.1 per cent of the childless in 1989. By 2002, 14 per cent of mothers and three per cent of the childless faced the

impossibility of conception. For women experiencing long periods of time to conception, the distinctions between the two groups narrow. In 1989, six per cent of the childless compared with four per cent of mothers had waited at least two years to conceive. By 1997 and 2002, about two per cent of both the childless and mothers had waited long to conceive.

Historically, the extent of infertility has been greatest in marital and common-law (residential) union types, and so we expected that impairment would be greatest for these women who are in more stable unions, and where the partners reside together. About a third of all women in each survey year were found to have their fecundity impaired (Table 8). This is due primarily to the increasing proportion that was subfecund due to pregnancy loss. In 1989, 31 per cent of the women in residential unions had impaired fecundity, with the proportion increasing to 38 per cent in 2002. The proportion of the subfecund declined from 25 per cent in 1989 to 19 per cent in 1993, increasing to 21 per cent in 1997 and further to 23 per cent in 2002. Of note is the shift in the relative importance of the category of non-surgical sterile and women experiencing a long interval to conception.

The distinction in fecundity status between two broad age groups, women 15−29 years, and women 30 years and older, is found in Table 9. While only 19 per cent of the younger group of women reported impairment in 1989, about 40 per cent of older women were found in this state. Subfecundity accounted mainly for this impairment among older women. There has been a decline in the proportion of surgically sterile in both age groups of women though far larger proportions of older women are reported sterile through surgery. This is due in part to policy initiatives which result in tubal ligations being recommended for women with at least two children, so they are more commonly found in older women (9). In addition, health concerns and conditions which require corrective surgery usually become evident at older ages.

With respect to the educational profile of women, those with no more than a primary level were, in every instance, worse off than women with higher levels of attainment (Table 10). Levels of impairment increased for women of all three educational levels, but especially for women with secondary education. Between 1989 and 2002, the proportion impaired for women with secondary education increased by ten percentage points. Thus, in 2002, a third of these women were experiencing impairment. Over this same period, the increase in the proportion impaired for women attaining the lowest and highest levels of education was much less. In 2002, about 40 per cent of the women with primary education or below experienced impairment, compared with 27 per cent for women with post-secondary education. Impairment in this case was due in large part to subfecundity, and to a lesser extent non-surgical sterility, for women with at least a secondary level education. However, for women with primary level education, there was a shift from long intervals to non-surgical sterility between 1993 and 1997, though subfecundity remained the chief factor accounting for impairment.

A review of the fecundity status of working women in the samples revealed that the proportion of surgically sterile steadily declined between 1993 and 2002, while the proportion experiencing impairment steadily increased (Table 11). In 1993, 27 per cent of working women were found to be impaired, with subfecundity and to a lesser extent, long waiting times to conception being factors responsible for this. By 2002, however, 34 per cent of those working were impaired. This was attributable to subfecundity and non-surgical sterility, as the proportion of those waiting long declined to much lower levels. The level of impairment among women who were not working was somewhat less than among those working. However, this proportion also increased between 1993 and 2002, due consistently to subfecundity, non-surgical sterility and long intervals, in rank order.

The proportion impaired and wanting a/another child increased from 15 per cent in 1989 to 17 per cent in 2002 (Table 12). Accounting for this was the increasing proportion of non-surgically sterile, which more than compensated for the slight declines of 1.6 percentage points in the subfecund. However, the proportion with impairment not wanting another child or who were uncertain about having another child was almost twice the proportion wanting a child, increasing from 28 per cent in 1989 to 33 per cent in 2002. This would indicate that women with impaired fecundity may consciously transfer knowledge about their ability to conceive to desire for a future birth. If a woman suspects that she cannot become pregnant either through her advanced age, or waiting more than two years to conceive, or has knowledge of this inability through a doctor's confirmation, she then revises her desire for a/additional child accordingly. This is apparent as virtually no woman who was surgically sterile expressed some fertility intention. However, in 1993, approximately 286 women (13.55) who were in this category reported not wanting a child or being uncertain.

It is apparent that women commonly hope to have children although there are clear signals from their doctors, or through the absence of menstrual cycles, or repeated pregnancy loss, that conception is unlikely. While it would appear that fertility intentions are sometimes in conflict with women's fecundity status, the strength of the norm favouring parenthood may outweigh acceptance of current status. However, we see that increasing levels of fecundity impairment are likely to swell the ranks of women with secondary infertility in the near future, and therefore recommend that health screening for conditions related to infertility be introduced so that women may be able to achieve the family size that they desire. Further work in this area utilizing data from the latest fertility survey and more advanced analytical techniques will reveal the correlates of impairment.

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