ORIGINAL RESEARCH ARTICLE

Successful Sex Pre-selection using Natural Family Planning

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Abstract

The objective of the study was to test the hypothesis that gender can be preselected by timing coitus in relation to ovulation, the marker of ovulation being the Peak symptom according to the Billings Method. A blind prospective study of 99 couples wishing to preselect the sex of their child was conducted in Nigeria, using the Post-Peak approach of Billings Method for males and Pre-Peak for females. Research co-ordinators examined the 'post-conception' form within four months of conception. This form recorded the timing of coitus prior to conception, and from this, the sex of child was predicted. 94 of the couples had a child of pre-selected sex showing a method success of 94.9%. 78 of 81 predicting a male were successful (96.3%) and 16 of the 18 predicting a female (88.9%). There was one user-failure, a couple who wanted a girl, timed coitus as for a boy, which they had. The study indicates that where comprehensive instruction is provided, the sex of a child can be preselected with a high degree of confidence by timing coitus, using the Post-Peak approach of Billings Method for males and Pre-Peak for females (*Afr J Reprod Health 2011; 15[1]: 79-84).*

Résumé

Présélection de sexe réussite à travers la planification familiale naturelle. L'étude avait pour objectif de vérifier l'hypothèse selon laquelle l'on peut présélectionner le sexe tout en calculant la date et l'heure du coït par rapport à l'ovulation, le marqueur de l'ovulation étant le symptôme du débit maximum selon la méthode de Billings. Une étude prospective à l'aveugle de 99 couples désireuses de présélectionner le sexe de leurs enfants a été menée au Nigéria à l'aide de l'approche du post débit du maximum de la méthode de Billings pour les hommes et d'avant débit du maximum pour les femelles. Les coordinateurs de recherche ont examiné la forme de la « post-conception » au cours de quatre mois de la conception. Cette forme a enregistré la date et l'heure du coït avant la conception et é partir de ceci on a prédit le sexe de l'enfant. 94 couples avaient des enfants dont le sexe a été sélectionné, ce qui montre un succès de méthode de 94,9%. 78 sur 81 qui ont prédit un mâle ont réussi (96,3%) et 16 sur 18 qui ont prédit une femelle ont réussi (88,9%). Il y a eu un cas raté ; le couple qui désirait une fille, ont fait le calcul comme s'il désirait un garçon, ce qu'il a eu en conséquence. L'étude montre que là où il y a une instruction compréhensive, l'on peut présélectionner le sexe de l'enfant avec une grande confiance en calculant le jour et l'heure du coït, à l'aide de l'approche du post débit du maximum d'après la méthode de Billings pour les mâles et le pré débit du maximum pour les femelles (*Afr J Reprod Health 2011; 15[1]: 79-84).*

Keywords: Family Planning; HIV Control; Obstetrics; Sex-Preselection

Introduction

In countries where the "boy syndrome" exists and a male child is often sought at almost any cost, an imbalance of the sexes occurs, with a preponderance of females, as couples with only girls conceive as often as possible until a boy is achieved. Parents of all-female families tend to have many more children than they would have had otherwise. In a high proportion of cases, having no male child causes family disruption and promiscuity that may lead to HIV infection. In at least one area it is the commonest cause of requests for divorce. This information is given anecdotally as peer reviewed citations are not available.

Ovulation and the Peak Symptom: The Billings Method, with a Post-Peak approach to preselect males, is used as a basis for sex-preselection, by timing coitus in relation to ovulation, the marker of which is the **Peak Symptom** of Billings Method. The architectural structure of the sperm-conducting mucus changes day by day during the fertile phase of the menstrual cycle, under the influence of the ovarian hormones.[1,2,3] The Peak is the last day on which the presence of fertile-type mucus is observed, having a distinctive slippery sensation and the appearance of raw egg-white (though not always clear in appearance), universally recognisable by fertile women.[3,4,5] The cross cultural WHO study[6] showed that nearly all fertile women, in both developed and developing world, *could recognise the day of the Peak in the first month of observation after instruction.* This marker of ovulation is used to attempt sex selection. Ovulation takes place on only one 24-hour day in any cycle, either at the Peak or within the next 48 hours[3]. With twins, both ova are released within the same 24 hours. An unfertilised ovum dies within 12 hours[2]. As demonstrated in WHO and other studies[3,4,6], once they

have been taught by trained instructors, women understand the significance of this mucus symptom and from it can tell when they are fertile and within 48 hours, the time of ovulation.[7,8] The Peak of the Mucus Sign is the last day of any slipperiness. It was given this name because it corresponds closely to *the peak levels of oestrogens in the blood just before ovulation.*[2]

Y-bearing sperms, necessary for the conception of male children, are more motile and shorter-lived than X-bearing sperms which lead to female children.[2,9] If intercourse is confined to the time of ovulation, the Y-bearing sperms arrive more quickly at the ovum and the resultant child is more likely be male. Intercourse confined to fertile days prior to ovulation is more likely to lead to conception of a female child.

To conceive a male child, coitus should be delayed until after the Peak so that the ovum will be either already waiting or released soon. The author had been teaching Billings Method in its general applications to over 7,000 couples over many years before the present study began, some of whom attempted sex-preselection by the Post-Peak approach for males. Anecdotally that application seemed to be correct. The author also noted that if coitus took place on the night of the Peak *(and was not repeated the next day),* it resulted in the conception of either a male or a female child. This was possibly because if the ovum arrived at the Peak, a male child would be conceived, but if not until 24 hours after the Peak, a female child. However it was found from anecdotal observations, that if coitus took place at the Peak **and was repeated the next day**, a male child was much more likely to be conceived.

A retrospective study had already been carried out in 13 States in Nigeria by the author, for different aspects of Billings Method, including sex-preselection using the Post-Peak approach for males. This was done by means of a widely circulated questionnaire which elicited 404 replies. The replies indicated over 97 percent success in sex-preselection, but though encouraging, this was considered to be no more than an approximation of the reality, as it was presumed that all the failures had not being reported. *A prospective study was considered important in order to rule out subjective bias.*

A blind prospective study was undertaken. Its objective was to find the true success rate and every possible failure. With the objective of finding every failure, the decision was made initially that if the sex of the child after delivery was not discovered (as could happen if the parents no longer lived in that State), it would be considered a possible failure. There was almost one such case, but eventually it was discovered to be an early abortion. Of the three couples who had a female child instead of the predicted male child, one was a late abortion. There was some doubt about the sex of the aborted child, but for the purpose of the study it was included among the failures.

The Ethics Committee of the Catholic Bishops' Conference of Nigeria formally approved of the protocol used in the research study based on the fact that the ability to preselect the sex of a child promotes marital harmony.

Methods

In three densely populated cities there are centres teaching Billings Method.[10,11] Couples attend who are either experienced users wishing to train as instructors or are learning the method newly. During the course information on sex-preselection[12] was explained and any couples who were interested, were invited to take part in the study. Billings Method was taught comprehensively by qualified instructors with many years of experience. As explained later, those wishing to preselect should not attempt to do so until able to confidently recognise the Peak symptom. Because of their high motivation to succeed, this precaution was always observed.

For the purpose of the prospective trial, three forms were used as follows:

- **Form A** explained all that was expected of those wishing to partake in the study, assuring fully informed consent from those who would do so.
- **Form B**, the Post-conception form, was to be completed by the couple, to record all acts of sexual intercourse, the mucus symptom and in particular the Peak day, so that the timing of intercourse in the cycle of conception could be assessed in relation to the Peak. The act of coitus was routinely charted the following night on the couple's daily chart. ***This form, together with the actual charts of three or four recent cycles including the days leading to conception, was to be received and assessed by the study co-ordinators as soon as possible after conception - within the first four months of pregnancy.*** Couples were also to state on Form B the desired sex of their child.
- **Form C,** the Post-Delivery form, was to be sent by the couple to the study co-ordinators after delivery, stating the sex of the newly-born baby.

All who requested the above-mentioned three forms received them without any obligation to finally participate. The couple did not have to explain their motivation which could be for themselves or to help their friends at a later stage. ***Being given the forms did not make them part of the study group.*** The study population did not include those who did not respond.

Sample size determination

The number of participants was determined simply by those who brought the Form B as soon as possible after conception and fulfilled the five criteria given below. The study group was made up of all who fulfilled these criteria which included a good understanding of the nature of the study in which they were partaking. There was no pressure on them to continue with the study and nothing to gain apart from achieving a child of the sex they desired and being able to help others to do so.

1. At least one spouse should be *able to read and write English* to facilitate accurate study of the forms, even though this excluded large numbers from the study.
2. The participating couple, both husband and wife, must complete and *return the post-conception form* to the study co-ordinators as soon as possible after the onset of pregnancy. Those presented after the delivery were automatically excluded from the study. Being a blind study this was essential but was the most restrictive element regarding the numbers in the final sample. Many couples living far away found it too difficult to return simply to report conception. Some would return after delivery to express their gratitude, but late arrivals could not be included in the study.
3. Irrespective of the sex of the child desired by the couple, the chart should show that *sexual intercourse had been restricted to days that could be recognised by the supervisors* as suggesting the conception of either a male or a female child according to the criteria outlined in the *Methods* section below.
4. The post delivery form had to be retrieved, unless an early abortion had occurred, so that the prediction of the sex of the child that had been made by the supervising team before delivery, could be confirmed or otherwise. Two cases ended in early abortion and were not included. There was one late abortion and it is included among the method failures. If the couple did not send Form C spontaneously, the co-ordinators went in search of it and retrieved it in all cases.
5. Ultra-Sound – At the time of this study, ultra-sound was not available in the areas involved. Nevertheless this procedure was explicitly out-ruled for study participants. Furthermore the prediction was to be made within four months of conception, before ultrasound would have done so.

No one who fulfilled these five criteria was excluded from the study. Ninety nine couples fulfilled these criteria and formed the study group. Details **o**f their age and parity are shown in figures 1 and 2. The many who received the forms and did not respond were not part of the 'study population'.

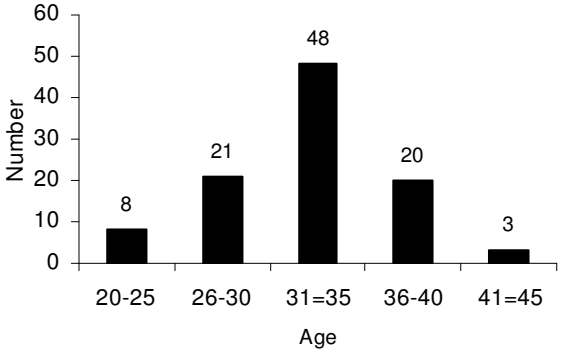

Figure 1: Age distribution of study participants

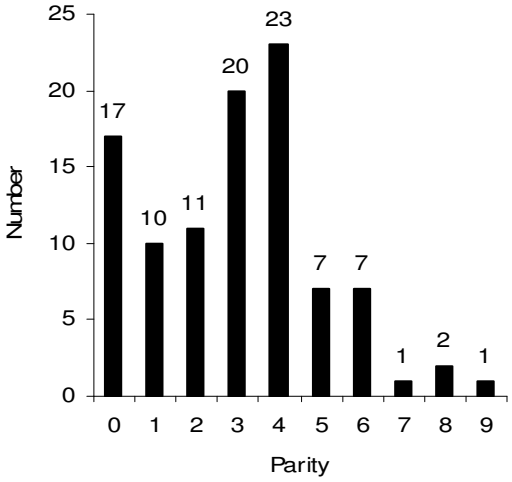

Figure 2: Parity of 99 women in the study group

The general teaching of Billings Method[12] was used to identify fertile and infertile days, using terminology suitable for use in Nigeria and a locally developed charting system. Participants in the study were advised to use only infertile days for sexual intercourse until they could easily recognise mucus with fertile characteristics and confidently understand the Peak. For this purpose it was recommended that they should avoid conception for at least three cycles. They were also advised to avoid conception until four months after weaning their last baby from breast-feeding, when a distinct mucus pattern would have returned. For the same reason, those who had been using the Pill or the Coil should delay conception until four months later.[13]

Confident recognition of the Peak is of paramount importance in sex-preselection. In Billings Method, **the** Peak is the last day of definite slipperiness whether there is any obvious stretching of mucus or not. *The mucus stretches much less at the Peak than on the days before it.*[3] The slippery sensation is caused by the presence at the vulva of fertile mucus, discovered by the simple observation of the slipperiness of *eggwhite mucus* against the outside of the vulva, during the normal toilet procedure following urination and without insertion of the finger. The vulva can readily appreciate the presence of this slippery mucus. Odeblad has demonstrated that "the sensation of slipperiness can be observed with 5mg or less of slippery mucus, which spreads over the vestibular area in a very thin layer, probably less than 0.1 mm. thick".[3] It is a striking sensation, easily noticed by busy women once they have been made aware of it and calls attention to its presence even when a woman is otherwise pre-occupied.

It is not possible to know it is the Peak on the actual day but only in retrospect. If there is no slipperiness the following day, the woman knows that yesterday was her Peak. The slippery sensation at the vulva is much more important than observing the stretching of the mucus. Understanding this is particularly important for sex-

preselection. The Peak is the last day of any slipperiness. As stated above it was given this name by the scientists involved in the initial studies, as it corresponds to the peak levels of oestrogens in the blood.

The Three Zero Days: The three days that follow the Peak, when there can be dryness or sticky mucus (termed 'Pap' in Nigeria) but no trace of slipperiness, are referred to as the ***Three Zero Days***. Conception is likely on the first day, less likely on the second Zero day and rare on the third Zero. Late infertile days begin on the morning of the fourth day after the Peak.

Rules used for Sex-Preselection: It is first necessary to ensure a good understanding of Billings Method. Illiterate women do not have a problem if well taught.

To conceive a female child: Sexual intercourse should take place before the Peak, preferably two days before the Peak and should then be avoided until the fourth day after the Peak. Once they have had some experience in the use of Billings Method, most women find that they can recognise the ***approach*** of the Peak by the changing quality of the fertile mucus.[12,13] Couples desiring to have a female child were therefore advised to begin their effort to conceive by using the first day of fertile mucus (*the first day of change from the dryness of the infertile days)*, then in subsequent cycles bring the day of intercourse gradually closer to the Peak.

To conceive a male child:

- Avoid coitus ***and any kind of genital contact*** from the onset of possible fertility until the morning of the second day after the Peak. If conception did not occur, couples should proceed immediately to the next step without further delay, as conception is uncommon on that second zero day.
- The next step was to use the night of the first day after the Peak, that is the first Zero day, *and if possible*, repeat coitus the next morning. Couples were told to persist in trying in this way for about four cycles. If conception had not taken place by then, couples were advised to proceed to the last step.
- Lastly try the Peak itself, what was thought to be the Peak (knowing it is recognised with certainty only in retrospect) and repeat the act of intercourse on the following day. It was specially important to have sexual intercourse again the following day because coitus at the Peak alone leads to conception of both boys and girls.

The trial co-ordinators studied Form B within the first four months of pregnancy and on it recorded a *prediction of sex*, based on the timing of intercourse in relation to the Peak in the conception cycle. Later the desired sex recorded by users on Form B, together with the predicted sex, was compared with the actual sex which resulted (Form C) to assess the user success/failure.

Results

Method and User Success: Of the 99 couples in the study, 94 gave birth to a child of the predicted sex according to timing of intercourse, giving an overall method success rate of 94.9%. This includes the only User-Failure in the study.

Method Failures: Of the 99 participating couples, five did not have a child of the predicted sex, despite following the prescribed instructions. Three out of the 81 who carried out the instructions to have a male child, had female children instead. Two out of the 18 who timed intercourse to have a female child, had male children instead. These were the five method failures.

In one method failure to have a female child, coitus took place two days before the Peak and in the second case on both of the two days preceding the Peak.

Of the three method failures for male preselection, one resulted from sexual intercourse on first Zero day, that is the first night after the Peak, and the other two from intercourse on both first and second Zero days.

Method Successes: As stated above, the overall method success rate was 94.9%.

Male preselection: Of the 81 couples in whom a male child was predicted according to timing of intercourse, 78 gave birth to boys and only three to girls, giving a method success rate of 96.3% for the preselection of a male child.

Female preselection: Of the 18 couples in whom a female child was predicted 16 gave birth to girls and only two to boys, giving a method success rate of 88.9% for the preselection of a female child.

In this study there were no cases of twin pregnancies.

Timing of coitus for the 78 Method Successes for male child:

- 32 couples succeeded by using both the night of first Zero (the day after Peak) and the following morning. *Repeating intercourse the next morning, the second Zero day, possibly increased the chance of success.*
- 20 succeeded by using just the night of the first Zero.
- 4 succeeded by using the second Zero Day.
- The remaining 22 couples seeking a male child, succeeded by using what was expected to be the night of the Peak as well as the following day, the first Zero day.

The timing of coitus for both groups in relation to the Peak day and the number of successful preselections of sex are set out in Table 1. To determine the method's success/failure rate, the significance of the difference between results obtained with respect to the timing of intercourse and those that would be obtained with random timing, was assessed by means of a Chi-squared test. The CIA World Fact Book (Central Intelligence Agency of U.S.) gives Nigeria's sex ratio as 1.06 males to

1 female. *Thus from 99 births, 49 or 50 correct predictions of sex would be expected by chance.* In fact there were 94 correct predictions. The discrepancy between predicted and observed values was highly significant ($\chi^2 = 78.23$, df=1; $p < 0.001$).

Table: Timing of intercourse in relation to peak in the 94 cases of successful sex preselection

Timing of Intercourse	Number of conceptions
FEMALE PRESELECTION	
Predicted Peak day minus 3	3
Predicted Peak day minus 2	6
Predicted Peak day minus 1	7
MALE PRESELECTION	
Day 2 post -peak	4
Day 1 post -peak	20
Days 1 and 2 post -peak	32
Peak day plus next day	22

Discussion

This blind prospective study shows that the post-peak approach of Billings Method is 96% successful in preselecting male children. It is more difficult to preselect a female child because of the uncertainty in predicting the Peak in advance; success rate was 89%.

Many of those who preselected a male child had either no male child or only one, until they began the "Post-Peak" approach. Of the 24 who had no male child before the study, four had two females, seven had three, nine had four, three had five and one had eight female children.

Studies compatible with present study

To the knowledge of the author the use of Billings Method with a Post-Peak approach for the selection of males, was first taught in the early-seventies in Papua New Guinea by Sr. Pauline Pitman. It was later taught in Nigeria in 1974 by the author. Neither knew of the work of the other until they met in Melbourne in 1978. By this time the nineteen women to whom Sr. Pitman had taught the Post-Peak approach for selecting males, had delivered 19 baby boys. Unfortunately this information can only be given anecdotally as Sr. Pitman has since died.

A study showing results at variance with this study was reported by Simcock[14], in which timing of ovulation was made by reference to basal body temperature which can only identify ovulation in retrospect[3], a likely reason for the failure to preselect.

Another study with results at variance was by Wilcox[15], the main difference being that coitus was not confined to a single occasion so that the act which led to conception could not be identified.

A special problem in the present study

As explained in the section on Methods, if conception did not result from coitus taking place after the Peak day, it is then performed at the Peak itself, but it must be repeated the next day, in case in that particular cycle ovulation was delayed till the following day.

However what was certain in this study is that for the 22 couples who had intercourse on what was expected to be the Peak as well as on the next day, a male child was conceived. *In contrast, of five cases who had coitus only on the Peak day, three had female infants and two had males.* These couples were excluded from the study as they did not comply with the study guidelines.

A big problem may arise for the husband in the last mentioned situation when many men are under tension and find themselves unable to repeat the sexual act the next day. The instructors were taught to carefully warn the couple of this possibility and how it can usually be overcome if they had previously practiced having intercourse on two consecutive days during infertile times, the wife helping her husband in this situation by what was taught as G, T and PPP, gentleness, tenderness, patience, privacy and play. [12]

There are two factors of major significance for sex-preselection that can easily be overlooked. The first is to recognise the Peak as the *last day of any sensation of slipperiness, even if there is very little stretching of the mucus, as the stretching is much less at the Peak than before it.*[3,12]

A second factor is that normal cervical mucus is crucial to the successful implementation of this method of sex-preselection. An important practical point is to ensure that at the onset of attempts to preselect, a normal mucus pattern has returned after breastfeeding, as was explained in the section on Methods.

The very high user success rate can be attributed to the high motivation to preselect successfully for legal, social, cultural and economic reasons. In some cultures parents of all-female families try to have children in quick succession in a desperate effort to have a male child before it is too late. As a result they have many more children than they would have had otherwise.

In these circumstances it seems reasonable to avail of natural sex-preselection to stabilise marriage, avoid a lot of unhappiness, have only the number of children they desire, raise the status of women, restore the balance of the sexes, and very importantly reduce the **danger of HIV infection** resulting from parents going outside marriage in the hope of getting a male child.

Acknowledgments

Particular thanks go to Drs. John and Lyn Billings for initial training of the author and later, while visiting nine States in Nigeria, for their advice to begin research as a blind prospective study. The author gives special acknowledgment and appreciation to Louise and Julian Ekwunife and to Paul and Helen Bobo, project

coordinators, for their skill in teaching and their untiring efforts to help in the accurate acquisition, analysis and interpretation of the data required for the research. The coordinating team is particularly grateful to Dr. Bob Ryder (U.K.) for his valuable statistical contribution and his critical assessment.

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