Special Article

A TRIAL OF THE OVULATION METHOD OF FAMILY PLANNING IN TONGA

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Summary In the ovulation method the woman defines the fertile and infertile days of her menstrual cycle by interpreting the cervical-mucus pattern. Clinical studies have shown that in all women the occurrence of fertility is accompanied by a characteristic mucous secretion, which allows the woman to recognise the days when conception is likely. This information provides a "natural" method of family planning, and a trial of its potential value was undertaken in a Pacific Island community. The method proved to be both acceptable and successful. Altogether 282 women used the ovulation method for a total of 2503 months, with one case of method failure and two cases of user failure.

Introduction

THE ovulation method [1] was developed to overcome the weaknesses of the rhythm method and the temperature method. The ovulation method is based on the known association in animals and humans of a characteristic type of cervical mucus, and usually an actual mucous discharge, at about the time of ovulation; it involves the instruction of women in the accurate interpretation of a symptom with which they are already quite familiar. The ability of women to recognise this symptom has already been assessed.[2] We found that even unintelligent and uneducated women were able to use the method successfully, either to avoid or to achieve pregnancy.

Doubts have been expressed about the probable success of a method of family planning which demands periodic abstinence in a "primitive" community. An opportunity to undertake a trial of the method in Tonga presented itself in 1970 when M. C. W. visited Melbourne, after many years' experience as a teacher and a nurse in Tonga, during which time she had become fluent in the native tongue.

Tonga seemed to be a suitable area for a clinical trial of the ovulation method. The people are Polynesian, gentle, friendly, and easy-going in their outlook. Very few women are aware of the length of their menstrual cycles. The practice of coitus interruptus is common, there is a general lack of motivation to limit the family's size despite poverty, and a consequent tendency to resist the application of methods involving continuing supervision and personal effort, whatever claims for success are made in their promotion.

The total population of the Tongan Kingdom is about 90,000 people, scattered over a total of 150 islands which cover an area of 250 square miles. The economy is wholly dependent upon agricultural products, and diet contains a large amount of carbohydrate. Only one person in five is gainfully employed, but most people have enough to eat. Primary-school education is compulsory and some medical services are free. European civilisation has made some impact on the inhabitants, but the majority are still rather unsophisticated, generally having difficulty in sustaining attempts at material advancement.

Instruction in family planning involved extensive travel around the islands by car, bicycle, and boat. In many areas only occasional visits were possible, separated by intervals of months. This necessitated taking up residence in various localities until a proper understanding of the method had been reached. The acceptance of the method was a voluntary decision made by both husband and wife. They were free to learn the method, to use it at once or later if they wished, and they were promised assistance whenever it was required, on the understanding that they would always be free to abandon the method and to return to it again.

The usual technique was to gather the women and their husbands together on a Sunday evening and to outline the method. The need for the couple's mutual cooperation in avoiding sexual contact when the mucus indicated possible fertility was emphasised. It has proved a considerable advantage to instruct the men, not only for the individual couple, but also because the men help to spread the information to other couples in their villages. People of "advanced cultures" have suggested that men living in more primitive communities will not tolerate sexual restraint. Our experience has shown this to be false, both by the ready acceptance of the husbands of a period of continence and by the abandonment of the habit of coitus interruptus in the vast majority instructed. There was strong male cooperation despite the relaxed life of the island, which would not be regarded as conducive to sexual restraint. The strong motivation of women who used the method successfully was partly the result of their husbands' insistence that they cooperate with the teacher.

On the following morning the women attended for more detailed instruction, when there was free discussion of the details of the mucus symptom. Some general instruction on anatomy and physiology was provided, with an explanation of ovulation and its occurrence approximately two weeks before the next menstrual period. It was explained that, unlike the rhythm method, the ovulation method does not require regular menstrual cycles, nor the keeping of a calendar. The phases of the menstrual cycle were outlined—the menstrual period, the "dry days", and the "mucus days". The change in the physical characteristics of the mucus close to ovulation was described in detail, the appearance of clear or stretchy or slippery mucus being the reliable indication of fertility. Emphasis was placed on both the appearance of the mucus and the lubricative sensation produced by this "fertile" mucus—the "peak" symptom which the women find easy to recognise. It was also explained that during long cycles, during breast-feeding, &c., "patches of mucus", that is, a succession of days on which mucus may be observed, occur intermittently before the typical pattern of a fertile ovulation, and that until the woman is experienced in the method sexual contact must be avoided whenever mucus is present. The scanty-mucus pattern of infertile cycles was also explained, and the need to distinguish the loss of seminal fluid after intercourse from the mucus symptom, an ability which is quickly attained.

A simple method of recording this information by the use of red, green, and white stamps was developed in Central America, and this was of great practical value. This record keeping, especially during the first few cycles after instruction, has the advantages of training the women

to understand the symptom and of providing the teacher with a record of the progress of the instruction. The women also helped one another by comparing and discussing individual records. In each locality the women were seen at least weekly, or more frequently if necessary, so that additional instruction could be given and confidence in the method gained.

Initial Response

In the first few months, when the teaching method was being developed, some women expressed difficulty in understanding the mucus symptom, a few complained of persistent vaginal discharges, and there were some reports of pregnancies which were interpreted as failures of the method until the areas involved were revisited and the circumstances in which these pregnancies had occurred determined. There was resistance in some cases to efforts to persuade the husband and wife to abandon the coitus interruptus which initially was practised by about 85% in those receiving instruction. A suggestion to use the thermometer was rejected because practical experience had shown that a large-scale use of the temperature method was impossible, both because of the expense involved and more especially because the method necessitates constant supervision. In addition, it was recognised that the temperature method is inferior to the ovulation method because it defines only days of infertility after ovulation, and even in that is less precise than the ovulation method. Tonga has its own special problem, in that prolonged breast-feeding is common and basal-temperature measurement cannot give warning of the resumption of ovulation. The temperature method also does not give information on infertility during anovular cycles.

It was essential to warn the husband and wife that coitus interruptus during the fertile phase of the cycle cannot be expected reliably to prevent pregnancy. Therefore, only those couples who were prepared to abandon the practice were accepted into the survey, there being no intention of allowing either the successful prevention of pregnancy by coitus interruptus to be recorded as a success for the ovulation method or a failure of coitus interruptus to be recorded as a failure of the ovulation method. Additionally, acts of sexual intercourse, including coitus interruptus, during the presence of the cervical mucus make the assessment of the symptom more difficult and therefore delay or prevent the correct interpretation of the symptom. The great majority of couples soon agreed to discontinue coitus interruptus, with a predictable increase in the physical and emotional satisfaction they derived from the act of intercourse.

Pathological vaginal discharges were seldom a problem. They can usually be treated successfully and in any event do not prevent the woman from recognising the time of fertility by the change produced in the pathological discharge by the characteristic mucus. In those women with a protracted mucus symptom additional detailed instruction was given to increase the freedom for intercourse by defining "relatively safe days" when "infertile" mucus was present and by avoiding sexual contact on any days when clear or stretchy or slippery mucus was observed; these individual problems lessened with increasing experience on the part of the woman herself and of the teacher.

The Group Studied

We report 395 women who were instructed after the start of the project in July, 1970; the results were assessed in February, 1972.

There was a good response to the instruction. 331 couples opted for the ovulation method. Most women found the mucus symptom immediately recognisable, and were pleased by the simplicity of the method. Many reacted favourably because they preferred a "natural" method, some because of the psychological advantage of a solution which is obtained by mutual cooperation, and some because of the attitude of the teacher, which never contained any element of coercion. The possibility of the information being employed to help those women whose marriages had been infertile created additional interest, and of the total there were 18 women who were anxious to become pregnant. 46 couples elected to use another method to avoid pregnancy, including one case in which the woman discovered that she had been sterilised at the time of a previous cæsarean operation. The preference expressed by these couples was as follows:

Method	*Number*
Coitus interruptus	27
I.U.C.D.	5
Contraception (unspecified)	9
Condom	2
Contraceptive medication	1
Rhythm method	1
Sterilisation (involuntary)	1

In the assessment of the results care was taken to make allowance for other influences which could have contributed to success. Coitus interruptus has already been mentioned. The ancient custom of a period of abstinence after childbirth has now fallen into disuse, intercourse being resumed after childbirth within an average of 5 to 6 weeks, this time being unaffected by a decision to suckle the child or not.

Many women were instructed during pregnancy or immediately after childbirth. In all cases the time on the method was not measured until at least six weeks after the confinement. If the mother was feeding the child herself the time was calculated from the date on which solid food was introduced into the weaning diet, however long after the confinement this proved to be. It is a matter of experience that a number of the Tongan women do become pregnant again whilst fully breast-feeding their infants, but as breast-feeding does reduce fertility ten women were eliminated from the total on this account; they are nevertheless established on the method, and none has become pregnant. 14 women were eliminated from the assessment because it was judged that they were close to the menopause; they were forty-three years of age or older, had irregular menstrual cycles and a scanty mucus symptom; they too have followed the method by avoiding intimate sexual contact on days when mucus has been observed, and none has become pregnant. There were retained in the series 17 women aged 41 to 45 years in whom there was no clinical evidence of approaching menopause; all the remaining

TABLE I—TOTAL CASES FOR ANALYSIS OF RESULTS

—	No.
Couples learning method to avoid pregnancy when desired	331
Anxious for more children at present	18
No recent information	1
Separated	4
Pregnant at initial interview	2
Still fully breast-feeding	10
Menopausal (age, irregular cycles, scanty mucus)	14
Total remaining	282

women were younger. There were 2 women who were discovered to have been already pregnant at the initial interview. One woman has been lost to follow-up. 18 couples decided that they would postpone use of the method until they had had more children. 4 couples were eliminated because of separation, 1 husband having died, 2 having travelled overseas to seek employment, and 1 woman having required protracted confinement in hospital for mental illness; even when this woman was allowed home she was obviously unwell, and intercourse occurred infrequently (see table I).

We encourage couples learning the method to refrain from sexual contact during the first cycle after instruction, so that the woman's understanding of the mucus symptom is not hindered by the effects of sexual intercourse. This recommendation was not insisted upon and not followed by all couples. However, to avoid loading the statistics in favour of success by the elimination of "high-risk cases", the time has been counted from the start of instruction and all have been included. There were two cases of the women having been uncertain of the correct application of the method; in both these cases the error was understood after further explanation.

There were 28 couples who, after following the method carefully for several months, elected to abandon it because they were anxious to have more children. The prompt occurrence of pregnancy when intercourse occurs on a day of clear, stretchy or slippery "fertile mucus" increases the confidence that couples have already developed in the reliability of the method. All of these couples intend to use the method again after confinement, and some are already doing so.

There were 50 women who "took a chance" by having intercourse on a day when the presence of the mucus had been recognised, and who therefore had no difficulty in realising why pregnancy had occurred. All of these women except one, who finds the observation of the mucus symptom and the period of abstinence troublesome, intend to use the method again in the future and many are already doing so. There is only one woman who believes that she did not have any sexual contact on a day in which the mucus warned her of possible fertility; she too, however, although apparently a "method-failure", is now using the method again, and successfully (see table II).

TABLE II—ANALYSIS OF 81 PREGNANCIES

—	No.
Couples using method	282
Subsequently pregnant	81
Abandoned method, desiring more children	28
Ignored indication of possible fertility	50
Used mucus day, thought infertile	2
Considers no days of possible fertility used	1
Average age (yr.) of women who deliberately or carelessly abandoned the method	33·2
Average number of children	4·8
Average age (yr.) of women still successfully applying the method	33·7
Average number of children	6·8

Results

The pregnancies which occurred, other than by design or by the conscious neglect of the instructions, were classified in one of two ways:

A biological or method-failure was recorded when, so far as could be ascertained, the couple had understood and carried out the instructions faithfully.

A user failure was recorded when there was an error on the part of the couple which the teacher could ascertain and explain to them to their satisfaction.

Altogether in this series a total of 282 women used the ovulation method for a total of 2503 months. There were two cases of user failure and one case of method failure.

Of the 18 women who were anxious to conceive, 7 subsequently became pregnant after careful attention to the mucus symptom and concentrating acts of intercourse in that part of the cycle when the peak symptom was in evidence. Previous investigation has shown that this peak-symptom day when the mucus is clearer than at other times, when it is stringy and produces a definite lubricative sensation, is on the average 0·9 days before ovulation.[2] Knowing that it is necessary for the spermatozoa to be in the female genital tract for some hours in order for them to become capable of fertilising the ovum, the day of the peak symptom is taken as the day of maximum fertility.

One of the women classified as a user failure had a long cycle in which mucus was observed on a succession of days. She had then incorrectly concluded that she had passed ovulation and had intercourse later in the cycle, on a day when copious amounts of clear slippery mucus were present. Explicit instruction is now given regarding the possibility of recurrent days of mucus in long cycles, in order for this mistake to be avoided, with emphasis on the avoidance of sexual contact when a fertile type of mucus is observed.

The second woman classified as a user failure had reported some confusion about the instructions, and uncertainty regarding the definition of fertile and infertile days. This pregnancy miscarried in July, 1971, after which she recommenced the use of the ovulation method; when last seen in March, 1972, she had become quite confident, and was using the method successfully.

The woman who was classified as a "method-failure", because she was unaware of having used a day when any mucus was present, received her initial instruction immediately after a confinement, before ovulation and menstruation had recommenced. The child which was conceived after instruction was born in September, 1971, and since then the woman has been using the ovulation method successfully.

Discussion

There is in Tonga a Government-sponsored birth-control programme which provides contraceptive medication, intrauterine devices, &c., free. The interest of the people in the natural method is therefore

in spite of these other provisions. Approximately 75% of the women who came for instruction were Catholics.

Establishment on the method is accompanied by feelings of relief and freedom. Many women quickly determine to pass on the information about the method to other women, and in particular to instruct their daughters so that they, too, can space their families. It is essential that the method be taught by a woman who is devoted to the success of a natural method and that the teaching be kept quite separate from that of any other method of family planning. It is not essential that the teacher should have had medical training; most women learn to become competent teachers after charting and studying their own cycles for a few months. An essential point which is emphasised in the instruction is that the women study carefully the sensation produced by the presence of the mucus, as well as noting its appearance.

It assists understanding of the method when women are reminded that they may have infertile cycles from time to time, in which little mucus is evident, and that this does not prevent the successful application of the method. Many " infertile " women notice that the typical mucus occurs in very few cycles, or not at all; instruction will acquaint these women of their greatest chance of achieving pregnancy, and will provide the information in time for it to be applied.

In the early months of this project a number of difficulties had to be overcome and the teaching programme organised. There were a number of women who found the interpretation of the mucus symptom difficult at first, and there were cases where the husband and wife found the periodic abstinence a problem. As we have observed in other circumstances, the abstinence became less of a problem when confidence in the method was established and the practice of coitus interruptus eliminated.

This investigation has demonstrated that the ovulation method is capable of successful application in a Pacific-Island community. The extraordinarily high success-rate is to be attributed to several factors:

(1) The teacher was a woman. She was an experienced teacher as well as a trained nurse, and most of the women instructed had been taught by her in their school days, so that she knew something of their character, ability, and dispositions.

(2) The teacher lived with the people during the learning period, so that she could provide individual advice and attention.

(3) The couples were living far from the pressures of modern civilisation. Possibly they have a greater awareness of physiological changes in the body than people in more sophisticated communities. The women were aware of the presence of the mucus and were able to recognise the peak symptom, contrary to the expectation of some people without experience of enlightened teaching of the method.

(4) Strong motivation on the part of the women came in many cases from the influence of their husbands, who insisted that their wives cooperate with the teacher.

It may be more difficult to achieve a similar degree of success in all communities, especially in those where sexual permissiveness is fashionable. Our experience in Tonga has shown that the method works. The explanation for failures is to be found in inadequate teaching or in a lack of cooperation and motivation by the persons concerned.

It has been most gratifying that those couples who " broke the rules " have, if anything, greater confidence in the method as a result, and have willingly returned to its use subsequently.

His Lordship, John H. Rodgers, Bishop of Tonga, met the expenses of this project, and we thank him for his consistent encouragement.

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REFERENCES

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2. Billings, E. L., Billings, J. J., Brown, J. B., Burger, H. G. *Lancet*, 1972, i, 282.

In England Now

We have always kept a .22 rifle in the corner of our bedroom. Nothing to do with enforcing conjugal rights or kinky orgies. Simply a habit left over from pre-myxomatosis days, when the main hope of saving the herbaceous borders was to get up at dawn and take pot shots in pyjamas at the rabbits on the lawn, before nipping back to bed until time for morning tea and clearing the corpses away. The status of our bedroom as an armoury also seemed to have the tacit approval of the policeman who called triennially about renewing our firearms certificate. No-one was likely to pinch the weapon from there in the night, and the ammunition was disarmingly hidden under my winter woollies in the chest of drawers.

Being a Tuesday, it was my wife's turn to make the morning tea. She pulled back the curtains to see what the weather was like. Next thing I knew was being shaken and told to wake up. Something was attacking one of our white doves down on the ground by the garage, and I must get up and save it, she said. I rolled out of bed, fumbled for the rifle, groped for the cartridges, and put one up the spout. Peering dozily out of the window in the half light of dawn, I could see white feathers being scattered from the dove, but what was on top of it was too dim to make out. All I could do was to aim-off at twelve o'clock of the dove and pull the trigger in hope. More a gesture to please my wife than any lust for blood.

Whatever it was fell dead. Which of the four of us was the most surprised will never be known. The dove staggered off with a half-plucked fuselage, my wife went downstairs to put the kettle on, and I was left sleepily contemplating a still-smoking gun barrel, wondering what murder was done. Shuffling down the garden in dressing-gown and slippers, I found it to be a gorgeously plumaged hen sparrow-hawk. A protected bird no doubt, even if caught in flagrante delicto: a problem of what to do next.

Fortunately we have on the outskirts of our village a girls' school with an insatiable thirst for countryside phenomena in life and death. The hawk in a polyethylene bag went into the school kitchen fridge. The art group will draw it one way tomorrow, and the biology class another way next week. The headmistress also happens to be a magistrate, so I think we can sleep quietly tonight.

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Some Canadian medical supplies that we have just received include bilingual tongue depressors/abaisses langue, but something is missing: the labelling on the box does not tell us the French for " say aah ".