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Family Planning
in the Goroka area of the Eastern Highlands

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**FAMILY PLANNING
IN THE GOROKA AREA OF THE EASTERN HIGHLANDS**

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Introduction

The limitation of family size seems to have been part of traditional behaviour in Papua New Guinea societies (Bulmer 1971; see also Somare 1975:12). However, contact with the European brought an end to many of the most effective practices. The reduction in the number of separate men's and women's houses and the associated decline in the post-partum taboo have contributed to an increase in the absolute numbers of births per woman. Most importantly, the extension of modern medicine and hygiene to the rural areas, recently through the Maternal and Child Health (MCH) programme, has seen a drop in infant and child mortality. More children are surviving to adulthood and this results in much larger families. It is estimated that every woman now has an average of seven babies in Papua New Guinea and less than one in 10 of the total number born will die before the age of five (Department of Public Health 1974:278). While the reduction in infant mortality rates from a high of 40 per 100 in some areas (*ibid.*) can be regarded with some satisfaction by the health authorities, the result is a dramatic increase in the rate of population growth. From a pre-contact situation in which the population was probably stable or at least subject to marked fluctuation,¹ Papua New Guinea has moved to a state of high and sustained population growth of 3 per cent per annum or more. This rate of increase implies a doubling of the population every 23 years.

At the national level the implications of this population growth have only recently been realized and a Population Research Project has been set up to aid the formulation of a national policy (Tago, Lepani and ToRobert 1976). However, at the grass roots level of individual Papua New Guinean families, the disenchantment with being burdened by large numbers of children has been clear for some time. In Port Moresby in

* I am grateful to Dr W. Muirden for comments on an earlier draft of this paper. The author alone is responsible for the statements and opinions expressed herein.

¹ Some authorities (Watson 1965; Nelson 1971) maintain that Highlands' societies grew rapidly following the introduction of the sweet potato two to three hundred years before contact. This hypothesis is far from proven.

the early 1960s there were requests from a large number of women for information on how to reduce the size of families (Muirden 1973). In Kainantu in the Eastern Highlands in the late 1960s the councillors wanted to know the white man's secret in limiting the number of children (Angus 1975) and in Enga in the 1970s European residents are asked for family planning devices which will solve a problem which "they" (the Europeans) brought on the Enga (P. Brennan, personal communication). Family planning clinics were established in Port Moresby in 1962 and in Kainantu in 1967. Although there have been periods of fluctuation (see Muirden 1973), family planning has grown from around 2,000 new acceptors a year in 1967-68 to over 10,000 per year in 1975-76 (Muirden 1976).

We must accept that family planning is but one small part of a complete population policy and that it deals with the symptoms rather than the cause of a "population problem". However, the evaluation of the impact of western birth control methods on the fertility patterns of women in particular areas in Papua New Guinea is an aspect worthy of the attention of the Population Research Programme. This brief report examines the family planning programme of the Goroka Base Hospital in the Eastern Highlands Province.

The principal problem in the analysis of any such programme is the lack of adequate data. Monthly records are supposed to be kept at each clinic detailing the total attendance, the number of new acceptors by method of contraception, a broad categorization of acceptors by parity and the number of failures. These records are seldom accurately kept and the monthly totals for the year rarely coincide with the annual summaries. In addition, many women accepting tubal ligations do not go through the family planning clinic but have their operation after childbirth. They do not appear on the forms of the clinic but are recorded in the theatre operation books.¹

There is a card for each patient attending the family planning clinic but I found that these had often been lost or misplaced. I eventually was able to go through 525 cards which represented approximately one third (excluding the tubal ligations) of the total number of acceptors since the clinic started in 1967.

¹ I am indebted to Dr C.R.S. Houghton who supplied me with these data.

The data

There are four types of family planning available at Goroka Base Hospital: intrauterine device (IUD); the pill; injection (depoprovera); tubal ligation (sterilization). In the sample of 525 family planning record cards there was information on 322 women who had accepted the Lippes loop, 70 who were taking the pill, 71 who had received depoprovera, 43 who were referred for a tubal ligation and 19 others.¹ Although the sample overrepresents the 1972-76 period² the proportions of acceptors of each method quite closely approximate the proportions of total acceptors³. The cases cover the period from 1967 through 1976 and while the sample may be representative of the total picture of family planning in Goroka since it began it is not illustrative of the programme as it exists today. The programme began with a heavy emphasis on the Lippes loop but this dominance has declined until in 1975-76 the loop was the least important of the methods given to new acceptors. The principal type adopted in 1975-76 was tubal ligation, followed by the injection and then the pill.⁴ Although the proportions of adopters in the sample are not presently typical of the complete pattern of family planning in Goroka, I think we can assume with a fair degree of confidence that for each family planning method the women in the sample are typical of the adopters of that method. Because the number of women in the sample who were referred for a tubal ligation does not tell us how many of them actually underwent the operation, I analysed separately the cases of 79 female sterilizations which were carried out in the hospital during the first three months of 1976⁵.

¹ These included one case of venereal disease, 6 women who had come for family planning but were already pregnant, 5 abortions, and 7 cases of infertile women who desired children.

² For example, in the sample the 1972-76 period covers almost 88 per cent of the acceptors of the loop whereas this period accounts for only about 65 per cent of the total acceptors at the hospital.

³ From April 1968 to March 1976 (but excluding 1970-71 for which year there are no data) about 760 Lippes loops were inserted, 278 pills distributed and 209 injections given: proportions of 60.9, 22.3 and 16.8 per cent respectively. The proportions in the sample are Lippes loop 69.7 per cent, pill 15.1 per cent and injection 15.3 per cent, proportions slightly favouring the loop over the pill.

⁴ Male sterilization, although it is available, is of negligible importance, only three operations being performed in Goroka in 1975-76.

⁵ I am grateful to Dr Gordon Campbell, then the chief obstetrician at Goroka Hospital, who allowed me access to these data.

I will discuss each method in turn dealing only with the indigenous population as acceptors of the various methods.

IUD

Over half (55.2 per cent) of the women accepting the IUD lived in rural areas (Table 1). One quarter lived in Goroka itself and the final quarter came from the villagers immediately adjacent to Goroka (and included within the 1971 urban census boundary) or from rural-non-village centres: schools, plantations, patrol posts, and so on. Although the total number of adopters of the IUD shows a progressive decrease in the number of women acceptors with increasing parity, there is a striking difference between rural and urban areas. Over one third (34.1 per cent) of women acceptors from urban areas had one living child or none and only 7.1 per cent of urban acceptors had five living children or more. The proportion of acceptors from rural areas was almost reversed: 11.7 per cent with one child or none and 36.9 per cent with five or more children. Peri-urban and rural-non-village areas were intermediate between these proportions although women from both these areas (and especially those from the rural-non-village sector) showed a tendency towards accepting IUDs at a relatively low parity. Although the data give us no information on the urban experience but only on place of residence of the acceptors, they do suggest that those women who live in the more modern sector, that is, the urban and rural-non-village sectors, adopt the IUD to space and plan their families. On the other hand, women from rural areas appear to accept IUDs to prevent an already large family from becoming larger. That this is not entirely true will become clearer below.

There is a fairly high rate of rejection both through requested removal and through the IUD falling out (Table 2). The proportions for urban, peri-urban and rural areas are around 30 per cent. (The rural-non-village is half this rate though this could be due to the smaller sample size.) The actual proportion will be greater than one third as it is likely that many cases of IUDs falling out in rural areas are not reported. Almost all the women from rural areas whose loop fell out had it replaced whereas those from urban areas tended to

Table 1 Acceptors of IUD x place of residence x parity (percentages)

Parity Residence	0	1	2	3	4	5	6	7+	n.d.	Total	No. in sample	% of sample
Urban	3.5	31.4	25.6	20.9	9.3	4.7	1.2	1.2	2.4	100	86	26.7
Peri-urban	0	31.0	10.3	13.8	10.3	6.9	10.3	13.8	3.4	100	29	9.0
Rural-non- village	0	48.1	14.8	11.1	3.7	7.4	7.4	0	7.4	100	27	8.4
Rural	0	11.4	15.6	16.2	16.8	15.1	8.4	13.4	2.8	100	179	55.6
n.d.											1	0.3
Total	0.9	21.7	18.0	16.8	13.0	10.9	6.5	9.0	3.1	100	322	100

n.d. no data on card.

Table 2 Rejection of IUD x place of residence (numbers in sample)

	Removal requested			Fell out			Preg- nant (7)	Total number rejection columns (1)&(4)	Reject- ors as % of accept- ors
	Total (1)	Other method adopted (2)	Wanted child (3)	Total (4)	Reinser- ted (5)	Other method adopted (6)			
Urban	16	3	2	9	2	6	2	25	31.8
Peri-urban	7	3	0	2	2	0	0	9	31.0
Rural-non- village	4	1	0	0	0	0	0	4	14.8
Rural	41	12	9	10	9	0	7	51	34.1
Total	68	19	11	21	13	6	9	89	31.2

Note. There are two principal categories of rejection: removal requested and the spontaneous expulsion of the loop. Where data were available I give the reasons for requested removal (columns (2) and (3)). However, these two columns when summed do not give the total in column (1). The difference represents no data available or no reason given. Similarly columns (5) and (6) when summed do not necessarily give the total in column (4) because no information was available in a certain number of cases.

switch to another form of family planning. Of those who requested the removal of the IUD, 27.9 per cent changed to another form of family planning. In the sample of 324 IUD adopters loops fell out or were removed from 89 women of whom 38 either requested that they be reinserted or accepted another form of family planning. Therefore 51, or 15.7 per cent of the total accepting IUDs, discontinued family planning for one reason or another. About one fifth of these discontinued because they desired another child.

However, this figure of 15.7 per cent is not very meaningful as it does not relate to rejection over any definite time period. If we consider the number of IUDs inserted in specific years with the number of requested removals for these particular cohorts we find an increase in removal from about 3-4 per cent after the first year to over 30 per cent after four years (Table 3). Unfortunately the numbers in the sample for years prior to 1972 are too small to be significant but if considered together they suggest that the removal rates may rise to about 40 per cent. If we examine the data for the years 1972-75 inclusive for which adequate data are available (Table 4), we see that there is a low rate of requested removal during the first year but that it rises rapidly and progressively during subsequent years.

On the other hand, we must also bear in mind that these figures do not include spontaneous expulsion so that the actual proportions of total rejection may in fact be higher. Spontaneous rejection within one year of insertion may be up to 10 per cent of total acceptors (Dr. N. Muirden, personal communication 1977) but will be lower in subsequent years. Therefore, after five to six years perhaps up to half the acceptors will have lost or rejected their loops. Approximately one quarter of these rejectors adopted some other form of family planning so that the actual proportion of those abandoning the programme is lower.

These figures are considerably higher than the 2.5 per cent rejection rate observed in the Kainantu area (Watson, Read and Radford 1973).

TABLE 3. SURVIVAL RATES OF IUD X YEAR OF INSERTION

[refers to column I in Table 2]

Year of Insertion	Number inserted in sample	Number removed by March 1976	Percentage decline to 1976
1967a	8	4	
1968a	2	1	
1969a	6	1	
1970a	4	1	
1971a	8	4	
1967-1971	28	11	39.3
1972	50	16	32.0
1973	69	20	29.0
1974	85	18	21.2
1975	75	2	3.3
1976 ^b	19	1	5.3
n.d.	11	-	
Total	322	68	21.1

a Number in sample too small.

b Not full year of insertions or rejections.

TABLE 4. PERCENTAGE DECLINE IN IUD,
THROUGH REQUESTED REMOVAL 1972 - 75

Year of insertion	Number inserted	Percent decline within 1 year	Percent decline 1 - 2 yrs	Percent decline 2 - 3yrs	Percent decline 4-5 yrs
1972	50	-	4.0	12.0	24.0
1973	69	7.2	15.9	27.5	
1974	85	3.5	17.6		
1975	60	1.7			

However, the time period is different. Watson et al took the proportion of expulsion after one year while the present survey includes women who had used the loop for several years. The period of maximum expulsion seems to be between one and two years after first insertion. This period was not covered by the Kainantu survey. Secondly, the parity of the women involved in this study is different from the sample examined by the doctors in Kainantu. In the latter survey three-quarters of the women had six or more pregnancies and 95 per cent had more than three. In the present sample the proportions are 15.5 and 39.3 per cent respectively. Hence, as we would expect, with women of lower parity there is a tendency towards a higher rejection rate. However, it is not only women of low parity who request removal. At least one fifth were women with three or more children. In fact, if we look only at those women from rural areas, we find that there is a greater tendency for those with a higher parity to request removal (Table 5). This suggests that a significant proportion of those rural women with four children or more still desire more children.

There was also a greater incidence of pregnancies than in the Kainantu survey. Nine were reported, seven being in women from rural areas.

The pill

The characteristics of women who are given and who accept the pill differ greatly from those using the IUD (Table 6). The vast majority (62.9 per cent) came from urban areas, and only 21.4 per cent lived in rural areas. Secondly, they tend to be women of low parity: 15.7 per cent had no children and 77.2 per cent had two or less. As one would expect, the pill, which requires some knowledge of the ovulation cycle, is distributed to women who are younger and who live in town.¹

¹ A recent development is the "red dot" pill. A pill marked with a red dot is taken on the first day of menstrual bleeding and the woman continues with other red dot pills throughout her period and progresses on to the standard hormonal pills. This simple sequence may aid rural and uneducated women to take the pill continuously and encourage health staff to promote its distribution in the rural areas. Until now extension officers have been reticent or even unwilling to give the pill to rural women as they have often assumed that it would be ineffective.

Table 5. Removal of IUD x parity x place of residence
[refers to column I of table 2]

Residence \ Parity	0	1	2	3	4	5	6	7+	n.d.	Total
Urban	0	7	1	6	0	2	0	0	0	16
Peri-urban	0	4	0	1	0	0	1	0	1	7
Rural-non-village	0	1	0	1	0	0	1	0	1	4
Rural	0	6	6	4	6	9	4	5	1	41
Total	0	18	7	12	6	11	6	5	3	68

Table 6. Acceptors of the pill x place of residence x parity
[number in sample]

Residence \ Parity	0	1	2	3	4	5	6	7+	n.d.	Total	% in sample
Urban	7	19	6	8	1	1	0	0	2	44	62.9
Peri-urban	0	2	1	2	0	0	0	0	0	5	7.1
Rural-non-village	2	3	1	0	0	0	0	0	0	6	8.6
Rural	2	6	5	1	0	1	0	0	0	15	21.4
Total	11	30	13	11	1	2	0	0	2	70	100
% in each parity class	15.7	42.9	18.6	15.7	1.4	2.8	0	0	2.8	100	

Unfortunately, no data are available in the sample on the number of women who discontinue after their first three months' supply is exhausted.

Injection

Like the pill, the injection is given mainly to women living in urban, peri-urban and rural-non-village areas rather than to those from rural villages (Table 7). However, the women receiving depoprovera have a higher parity than those taking the pill. Over 35 per cent of the women had four children or more, only 45 per cent having two or less: a pattern closer to that of IUD users than to those on the pill. Again the data on continuation of the injection are inadequate. The first shot lasts for three months. We know that at least 20 women of the 71 acceptors did not continue to a second injection and that 15 did continue to a second shot (no data on the other 36). This suggests that rejection of this method of family planning is high. One problem with this method is that it may cause amenorrhoea and eventually infertility. It should therefore not be given to women of low parity who may later desire more children. Unfortunately, about half the recipients of depoprovera at Goroka Base Hospital had two children or less and two young girls had no children. This is against the Department of Public Health policy which does not advocate the injection for women who have two children or less.

Tubal ligation

Sterilization of women is the fastest-growing method of family planning in the Goroka area, increasing from 81 in 1970 (although declining to 35 in 1971) to over 200 a year in the period 1975-76. Not surprisingly, because of its permanent nature it is accepted by women with high parity (Table 8). None had two children or less. At present tubal ligations are not promoted among women of low parity. The western concept of a "complete family" after two or three children is not being imposed by the family planning programme. The tubal ligation is being promoted primarily to safeguard women against the much higher risks of complications during childbirth which arise after the fifth pregnancy and only secondarily to limit family size. At least 84.8 per cent of my

Table 7. Acceptors of injection x place of residence x parity
[numbers in sample]

Residence \ Parity	0	1	2	3	4	5	6	7+	n.d.	Total	% in sample
Urban	2	10	7	11	7	2	2	0	0	41	57.7
Peri-urban	0	0	1	1	2	1	0	0	0	5	7.0
Rural-non-village	0	2	2	1	2	0	0	0	0	7	9.9
Rural	0	1	6	1	5	1	3	0	0	17	23.9
n.d.	0	0	1	0	0	0	0	0	0	1	1.4
Total	2	13	17	14	16	4	5	0	0	71	100
% in parity class	2.8	18.3	23.9	19.7	22.5	5.6	7.0	0	0	100	

Table 8. Acceptors of tubal ligation x place of residence x parity
(numbers in sample)

Residence \ Parity	0	1	2	3	4	5	6	7+	n.d.	Total	% in sample
Urban	0	0	0	2	2	0	1	1	1	7	8.9
Peri-urban	0	0	0	0	4	0	2	6	1	13	16.5
Rural-non-village	0	0	0	0	0	0	1	1	0	2	2.5
Rural	0	0	0	13	13	11	8	17	5	57	72.2
Total	0	0	0	5	19	11	12	25	7	79	100
% in each parity class	0	0	0	6.3	24.1	13.9	15.2	31.6	8.9	100	

1976 sample of 79 women had four children or more and at least 45.6 per cent had six children or more. The place of residence of acceptors is strongly rural: 72.2 per cent as opposed to only 8.9 per cent for urban residence. There is a tendency for urban adopters to have lower parity than women from rural areas. This would suggest that women with a more modern outlook desire smaller families. Only four of the 79 adopters, all from urban or peri-urban areas, had secondary education and two others, one from a rural-non-village and one from a rural area had some primary education. Only five of the women had previously used another type of family planning: three had used IUDs, one the pill and one some "other" type.

Discussion

The analysis of the sample of women adopting family planning in the Goroka area has indicated sharp differences among groups accepting the various types of family planning available. The loop, and tubal ligation especially, are adopted by women living in rural areas and mainly by women who already have four or more children. The pill and the injection, on the other hand, are adopted by women living in town and by women with relatively low parity. Those women in town who adopt the loop also tend to have smaller numbers of children. Given the demographic structure of Goroka town, this pattern of younger women adopting family planning is to be expected. Only 11.4 per cent of the female population in the town of Goroka in 1976 was 30 years or older. This explains to a large extent the lack of older women of high parity in the urban figures on family planning.

The most interesting fact is that there is a strong demand among women from rural areas for family planning.¹ This is in contrast to countries in Africa where the early acceptors are likely to be women of lower parity from the least traditional sectors of the economy (Caldwell 1973). The difference between urban and rural in Papua New Guinea may not be as marked as in Africa and there is a constant circulation of population

¹ The Goroka Base Hospital figures underestimate the actual demand as there are clinics in the rural areas. These were held monthly at Asaro and Lufa and weekly at Sigerehe (Bena). However, the annual figures of new acceptors for these centres are small (Asaro 9; Lufa 2; Sigerehe 39). Most of these clinics have now been discontinued.

between town and village which facilitates the rapid diffusion of information concerning the modern world. The demand from rural areas is also a tribute to the effectiveness of the rural health extension programme itself: 75 per cent of those adopting tubal ligation claimed to have first heard of the method through the family planning programme. Another 12.7 per cent heard from friends, while only 2 of the 79 in the sample first received the information on the radio (no data on 6 of the 79).

On the other hand, the fact that it is rural women of high parity who are the acceptors means that the programme has to some extent "missed the boat" as far as controlling the total rate of population increase is concerned. As in the African countries, it is in the urban areas that family planning is most likely to be successful in child-spacing and controlling actual family size.

The most difficult problem is to try to assess the total impact of the family planning programme. In the Kainantu area it is estimated that 15 per cent of the pregnable age group attended the clinic between 1967 and 1972 (Radford 1972) and in the four census divisions close to Kainantu between 6 and 18 per cent of the women of child-bearing age were acceptors (Goroka Base Hospital 1974).

Records at the Goroka Hospital are incomplete but the existing data suggest that there were about 1,800 new acceptors of family planning between mid-1972 and mid-1976. Women attending the Goroka clinic come primarily from the Goroka district, including the town of Goroka, and the Lufa and Henganofi districts. A very rough approximation of the number of women at risk (ages 15-44) within this area in the early 1970s is 26,000.¹ This suggests that family planning reached only about 7 per cent of the women of pregnable age during this period. Given the high parity of the majority of acceptors and the high rejection rate of those acceptors of low parity, it can be seen that the family planning

1.

Based on Department of District Administration data adjusted to the age distribution of the 1971 Eastern Highlands census figures.

programme has a long way to go before it will make a noticeable impact on the rate of population increase in the Goroka area of the Eastern Highlands. Perhaps the best that we can hope for is that the programme will teach mothers in the urban areas to space their children and optimistically to have smaller families.

Although the number of tubal ligations at Goroka Hospital increased by 30 per cent in 1975-76, from 221 to 286 (estimate), this was offset by a decline in the number of loops adopted. These decreased by 55.7 per cent from 149 in 1974-75 to 66 in 1975-76. Both tubal ligations and loops are, as I have shown, adopted mainly by rural women so that it would appear that the family planning programme is losing its impetus in the rural areas of the Goroka region. It is difficult to tell from the figures whether there has been a decline in the total number of new acceptors of family planning at Goroka Hospital from 1975-1976.¹

If there has not been an actual decline, there has certainly been a slowing-down in the rate of increase of the diffusion of family planning in the Goroka area over the last year. One of the principal problems is that when competent staff are promoted or transferred the programmes they have set up are often discontinued or allowed to run down. This is what has occurred with some of the outstation clinics in the Goroka area. The personality of the obstetrician, especially in attitude towards sterilizations, influences the number of operations performed (C.R.S. Houghton, personal communication, 16 October 1976). There are also other problems. For example, there is the belief that the loop causes women pain when they are digging their gardens, and there is a dislike of any surgical operation and rural women are reticent about vaginal examinations, especially by male health officers.

Given the existing pattern of acceptors of family planning it will be a long time before it can make an appreciable impact on the rate of population increase and lower it from the present alarming figure of

¹ The annual summary data suggest a decline but there would appear to have been a mistake in the number of tubal ligations performed during 1975 as the theatre record books show about half the number of tubal ligations listed in the annual summary.

over 3 per cent annum. However, if the programme can reduce maternal mortality caused by too many pregnancies and promote better nourished children through spacing it will have achieved an immediate humanistic goal. As I have shown, the programme in the Goroka area appears to be losing its impact among rural women. This area is not typical of the country as a whole and there are more dynamic regions - the Western Highlands, for example. On the other hand, if we take the country as a whole, perhaps only 2 per cent of the pregnable women have accepted family planning so the Eastern Highlands is well above the average. There is certainly no room for complacency if family planning is to help both rural and urban women in Papua New Guinea in their desire for better spaced and smaller families and to aid the country in reducing the rate of population growth.

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