SEX PATTERN AND SIZE OF FAMILY

BY

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The Report by the Royal Commission on Population (1949) gives details of changes which have occurred in the size of families since the 1860's and discusses the factors which have led to them. It is well known that the size of the average family has recently fallen considerably. This tendency is common to most of the peoples of Western civilization and is almost entirely confined to them. It is a reflection of a slowly spreading change of habits and traditions which began in the nineteenth century, without, however, making any noticeable alteration in the birth rate until some fifty years later. Since that time there has been a continuous decline in family size.

There have been fluctuations in this downward trend for various reasons, but the acceptance of the idea of voluntary family limitation has remained, and has spread through nearly all classes and ages of people. This phenomenon can be regarded only as a fundamental and irreversible adjustment to modern conditions. As there is no evidence of a falling off in fertility, there can be no doubt of the fact of planned and deliberate family limitation.

It was thought reasonable to inquire if there might be another factor influencing the parents besides the actual number of children desired—namely, the sex of the children. Some parents might be expected to wish their families to include at least one boy or one girl, or they might want a mixed family. The ultimate size of some families could conceivably be influenced by these preferences, which might even in some cases overcome considerations of mere size.

The Investigation

In order to investigate this possibility, data were obtained from a class of second-year medical students in the University of Glasgow in 1947. About 230 students were given a questionnaire which asked for the age and sex of each child in their own families—that is, present generation—and in the families of their parents and grandparents—that is, parents' and grandparents' generation. They were also asked to state the age of both parents at marriage and their present age.

TABLE I.—*Mean Family Size in the Three Generations. The Differences Between the Means are Statistically Significant in All Cases*

Generation	Mean Family Size	Standard Deviation
Present	2.66	1.505
Parents'	5.488	2.88
Grandparents'	6.075	2.86

A few students refused to take part in this investigation, and some of the forms which were returned gave incomplete information or concerned a family in which a second marriage had occurred. These forms were discarded and the final number used for the analysis was 196. In every case the age of the mother was such that it could be assumed that the family was complete.

The mean values of family size were calculated (Table I). The mean size fell slightly from the grandparents' generation to the parents' generation, and quite considerably in the present generation. The differences between the means are significant in each case.

The mean interval between the birth of each child of the present generation was 44 months, and of the parents' generation 34 months. The average time which elapsed between the marriage of the parents and the birth of the first child of the present generation was 28 months, but no information on this point can be given for the previous generations.

The possibility that the composition of a family might be a factor in determining its ultimate size was investigated by means of the fourfold table. In Table II the present generation is considered with respect to

TABLE II.—*Fourfold Table to Indicate Whether the Sex of the First Two Children in a Family Affects the Ultimate Size of that Family. The Difference Between the Two Groups is Significant in Both Generations*

First Two Children	Present Generation		Parents' Generation	
	Stop	Go On	Stop	Go On
Sex same	33	52	10	164
Sex different	40	30	20	121
	$\chi^2 = 4.46$ P = 0.04		$\chi^2 = 5.49$ P = 0.02	

the first two children born. From those families which were two or more in number two groups were made—one in which the first two children were both of the same sex, and a second in which the first two were of different sexes. These two groups were again sorted according to whether the family stopped at two or was subsequently increased. Out of a total of 70 families in which the first two children born were of different sex there were 30 cases in which subsequent children were born and 40 cases in which the family stopped here.

In those families in which the initial composition was either two boys or two girls there was a greater tendency for the family to increase; in 52 cases the family increased, and only in 33 cases did the family remain two in number. This suggests that where the family consisted of a boy and a girl more parents were satisfied—that is, they considered this a suitable family. In the instances in which the sex of the first two children was the same, the subsequent increase in family could be explained as a desire on the part of the parents to have a child of the opposite sex. In such a complex situation no more than a tendency in a particular direction could emerge, and a number of parents were apparently uninfluenced by such considerations. If we assume that all the families were deliberately limited (which is not necessarily the case) the number of children rather than the sex was the determining factor in the plans of this group.

The families in the parents' generation were sorted in the same way. Although many more families continued to increase in size than was the case in the present generation, analysis revealed a similar tendency, and the differences were again significant (Table II). The greater tendency in the parents' generation to have more than two children is a reflection of the reproductive pattern of the time, but even then the sex of

the children already born may have begun to have some influence on the family size. It is perhaps worth noting that in one family, made up of five girls, the last two born were named Robertina and Adamina, which suggests a little wishful thinking on the part of their parents.

The fourfold table was again used in both the present and the parents' generations to divide the families with respect to the first three children (Table III), but

TABLE III.—*Families of the Present and Parents' Generations Divided as Before With Respect to the First Three Children Born. There is no Significant Difference Between the Two Groups in Each Generation. It Appears that in a Family of This Size it is the Number of Children Rather than the Sex Pattern of the Family which is More Important*

First Three Children	Present Generation		Parents' Generation	
	Stop	Go On	Stop	Go On
Sex same	10	8	15	70
Sex different	36	30	35	159
	$\chi^2 = 0.034 \quad P = 0.86$		$\chi^2 = 0.0062 \quad P = 0.94$	

no significant differences appeared. This could be interpreted as meaning that when a family has reached a total of three the decision whether or not the family should be increased is made independently of the sex of the children already born.

Discussion

The pitfalls involved in attempting to deduce human motives from such statistical data are well known, and it may be that an inquiry on a larger scale than the present one is necessary to yield reliable conclusions. It may even be that the motives for increasing the size of the family which we have selected are not the real ones, but the statistical examination of the data is not against those ideas. This small inquiry shows that there is a tendency for the size of a family to depend on the sex of the children already born. It is well known that in order to maintain the level of the population it is necessary for parents to have a family larger than two in number. According to these results, where a family consists of a boy and a girl, in the present social circumstances, there is less chance of another child being born than is the case when the family consists of two boys or two girls. Details of the size of families resulting from marriages which took place in 1925 are given in the Royal Commission on Population Report (Table 17, p. 26). These families form the present generation; 14% of these marriages resulted in a family of three children and 25% in a family of two children. The data obtained in the student survey suggests that in some cases at least of these 25% of parents the number of children stopped at two because the parents were satisfied with the sex pattern of their families.

The critical moment, from the point of view of the size of the future population, is at the birth of the second child. The sex of this child will, I think, decide for a certain number of parents whether their ideal family has been reached, or whether a state of disappointment exists which may induce them to have another child. If I may be permitted a long-distance glance into the future I might quite properly ask what the parents of the future would do if sex determination became possible. If the motives which appear to have been exposed by the analysis of our data continue

to influence parents, the family size of the future may be somewhat smaller than it is at present, as many parents will choose to have a boy and a girl.

Although the time has not yet come for us to be concerned by this apparently remote contingency, it is suggested that the influence of the composition of the family in deciding family size, quite apart from any consideration of motivation, is worthy of consideration now. In the population surveys which have so far been made no attention has been given to the possibility of such an effect.

I wish to express my thanks to Professor G. H. Bell for his considerable help and advice.

REFERENCE

Royal Commission on Population Report. June, 1949. H.M.S.O., London.

BLOOD FLOW IN GOUT

BY

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Professor Wood Jones (1950) has written an account of gout based on observation on a single patient—himself. Emboldened by this precedent of my former teacher, I record here some observations of the peripheral blood flow in a case of this disease. The opportunity of making this study was fortuitous, and was aided by the fortitude of the sufferer, who would have been expected to shun an instrument such as a plethysmograph as he would the torture rack.

Case History

The patient, a sergeant aged 55, was first seen by me on June 8, 1950, at another hospital, where he was admitted for investigation of pain in his right leg induced by exercise. He stated that he first noticed a slight ache in his right calf after taking part in the Victory March in 1945. The symptom recurred after long walks and became more pronounced in the following year, at which time he could walk two miles (3.2 km.) before experiencing discomfort. During the 12 months before his admission to hospital his walking distance before feeling pain had decreased gradually to 100 yards (91 metres). On stopping, the pain disappeared in three to four minutes, after which he could again walk a similar distance. After much walking the calf muscles became tender to pressure.

On examination he was seen to be a well-nourished middle-aged man. His blood pressure was 150/95 mm. Hg. Apart from the changes noted in the arterial system, routine clinical examination revealed no abnormality. The brachial and radial arteries were not clinically thickened, and they pulsated normally. Normal pulsation was felt also in both femoral and left popliteal arteries. No pulsation was noted in the right popliteal or the dorsalis pedis and posterior tibial arteries of either foot. Oscillometry showed good pulsation in his left calf but no pulsation in his right calf.

Electrocardiographic tracings were normal; x-ray examinations showed the heart outline to be within normal limits and provided no evidence of vascular calcification in either leg.

Arrangements were made for the patient to be sent to the Alfred Hospital for plethysmographic study. Whilst awaiting this move he suddenly developed severe pain, redness, and slight swelling in the region of the metatarsophalangeal and first interphalangeal joints of his left great toe. A week later a similar condition occurred in his right