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DESIRED FAMILY SIZE AND SEX OF CHILDREN IN A SAMPLE OF NIGERIAN POPULATION

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ABSTRACT

In 2001/2002 academic sessions, sex ratio data and preferences for family size and for combinations and permutation of children were provided by 644 Nigerian students at the Lagos State University, Ojo, Lagos, Nigeria. For the present and parental generations combined, the secondary, sex ratio was estimated to be 101 males: 100 females. In the projected families, preferences for family sizes resulted in an average of 3.86 children per family. The most preferred family consisted of three children – a 2m1f combination in a mfm order. Whereas the second most preferred family consisted of two children – a 1m1f combination in a mf order. Also expressed was a strong preference for permutations of sexes, resulting in a male child as first-born followed by an alternation or sexes. A greater preference for male children was indicated by the combined sex ratio of 120 males: 100 females for the preferred families. Family size is the critical variable in population growth and factors influencing family size include sex composition. The implication of these as related to health is discussed.

Key Words: Secondary Sex Ratio, Combination, Permutations, Sex Order, Family Size, Natural Selection

INTRODUCTION

The estimate that out of every five Africans, one of them is a Nigerian is a pointer to the fact that Nigeria is one of the most populous country in Africa. The Nigeria population at present is estimated to be about 130 million. The alarming rate of growth of population in Nigeria had made the Federal Government of Nigeria to embark on vigorous campaign for the adoption of family planning programme with the objective of convincing Nigerians to adopt small family sizes.

The motivation for smaller families is a prerequisite to stabilization of world population (Gray et al, 1983). Family size is the critical variable in population growth. Small family sizes improve the quality of life of individuals, family, society and nation as a whole, as the income will sufficiently go round all members of the family in the provision of adequate nutrition, clothing, shelter, healthcare and education.

Reductions in average family size have been responsible for slower growth rates of human populations in technologically developed countries. Further, reduction in family sizes will be needed to ease mounting pressures on global resources.

Family sizes can be influenced by several factors such as behavioural, environmental, social, economic, religious, and genetic (biological). Gray and Morgan (1976) stated that sex combination is foremost. Gray and Morgan (1974) reiterated that the combination of sexes of the first three children and sometimes the first two children influence the population. However, Chahnazarian [1988] reported that birth order and paternal age appear to be negatively correlated with sex ratio at birth.

Parents are less likely to have additional children after both sexes are represented in some populations (Gray, 1982). Park (1978) and Rutherford and Sewell (1991) reported that in other populations parents are less likely to have additional children when existing children include a high proportion of males.

Moreover, preferences for both sexes and for more males may influence family sizes in the same population (Gray, 1982). Several studies have failed to detect any influence of sexual composition of children on family size (Ayala and Falk, 1971; Varella – Garcia, 1977 and Gray et al, 1980).

A section of Nigerian population particularly university undergraduates was chosen for extension of the human sex ratio and family characteristics because of its magnitude (greater than 120 million) and it's growth rate estimated at 4-5% annually). Also approximately, 48% of the Nigerian population is 16 years of age and younger and because they form the bulk of next generations of parents which is expected to join the reproductive age in the next decade.

The objective of the present investigation was to extend studies of the human sex ratio and preferences for family size and for combinations and permutations of sexes of children to Nigeria, a developing country with an already large, rapidly expanding population. It is also intended to confirm the earlier submission of an author in Nigeria that college students in Nigeria are not motivated towards family sizes that are small enough to result in a stabilized population.

METHOD

During 2001/2002 session, Nigerian students from LASU, Ojo across faculties were surveyed to determine various family characteristics of the parental and present generations. It also included determination of the students' preferences for family size and for combinations and permutation of sexes in their children. Information was provided by a total of 644 students from 25 of the 36 states in Nigeria. Islamic and Christianity were the religious preferences most frequently reported by the respondents.

The unintentional inclusion of polygamous families precluded conventional analyses of family size, associations between sexes of successive children, and the impact of combinations and permutations of sexes of children on ultimate family size. The data were suitable, however for studying sex ratio and the desired characteristics of protected families.

RESULTS

Six hundred and forty four respondents provided information for the computation of the data. Figure 1 shows the desired number of children by the respondents. All of the respondents desire 2, or more children. No respondent wanted none or one child. However, the data showed the highest preference for three children families with 47.98% and lowest for five children families with a value of (34/644) which corresponds to 5.27%.

For Nigerians, in this study, the most preferred family size was three children (47.98%) and the average size desired is 2.95 children. The combinations and permutation preferences of sexes as well as preferred orders of children are presented in Table 1 for 2 and 3 children families, Table II for 4 children families and Table III for 5 children families.

For desired families of two to five children, combination of both sexes were preferred over all female or all male children. For even-numbered – family sizes of two or four children, preference were for an equal number of sexes 1M1F, 31.36% (Table I) and 2m2f, 10.50% (Table II) for 2 and 4 children families respectively.

For odd-numbered family sizes of three and five children, preferences were for the combination nearest to equal numbers of males and females but that favoured more males 2m1f, 42.70% (Table 1) and 3m2f, 2.90% (Table III) for 3 and 5 children families respectively.

In all the family sizes reported, the most preferred permutation of sexes were those arrangements giving a male child as first born followed by alternating sexes – mf, 31.36% for 2 children family and mfm, 39.40% for 3 children families (Table 1), mfmf, 6.20% for 4 children families (Table II) and mfmfm, 1.20% for 5 children families.

When data for families of all sizes were combined, the sex ratios – numbers of males per 100 females were 101, 170, 121 and 113 for 2, 3, 4 and 5 children families respectively, reflecting greater preferences for male children.

The secondary sex ratio (males:100 females at birth) for the parental and present generation combined (2,541 births) was 104.85, indicating evidence of balancing mechanisms between the sex ratios.
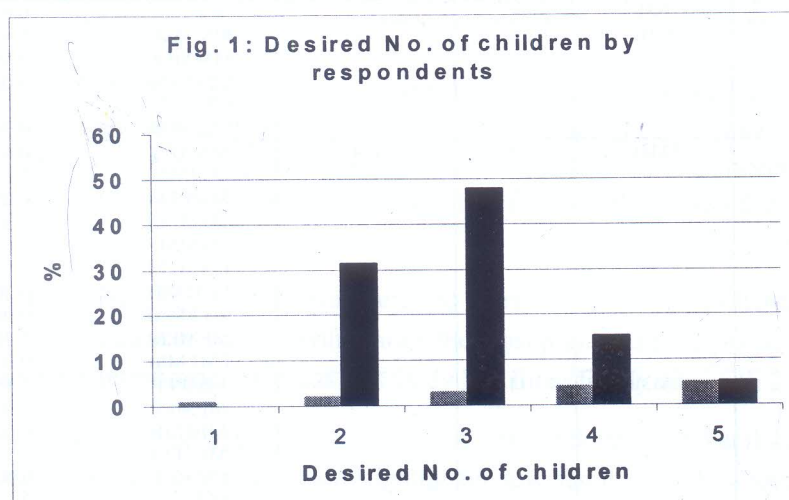

Fig. 1: Desired No. of children by respondents

Table 1: Desired Family size, combination and permutation of sexes of children in 2 and 3 children families.

No. of Children	Combination of Sexes	Respondents' preferences	%	Permutation of Sexes	Respondents' preference %
2	2m	-	-	-	0.00
	1M1F	202	31.36	MF	31.36
	1F1M	-	-	-	0.00
	2F	-	-	-	0.00
	3M	-	-	-	
	2M1F	275	42.70	MMF	2.54
				MFM	39.4
3	1M2F	34	5.28	FMM	2.88
				FFM	2.00
				FMM	0.76
				FMF	0.40

Table II: Desired family size, combination and permutation of sexes in 4 children families

Combination of Sexes	Respondents' preferences	%	Permutation of Sexes %	Respondents' preference %
4m	-	-	-	0.00
3M1F	26	3.97	MMMF	2.42
			MMFM	0.39
			MFMM	1.16
			FMMM	0.00
2M2F	66	10.50	MMFF	0.98
			FFMM	0.60
			MFFM	2.10
			MFMF	6.20
			FMFM	0.62
1M3F	7	0.09	MFFF	0.90
			FMFF	0.00
			FFMF	0.00
			FFFM	0.00
4F	-	-	-	-

Table III: Desired family size, combination and permutation of sexes of children in 5 children families.

No. of Children	Combination of Sexes	Absolute Numbers	Respondents %	Permutation of Sexes %	Percentage %
5	5M	-	-	-	0.00
	4M1F	3	0.4	MMMMF	0.40
				MMMFM	0.00
				MMFMM	0.00
				MFMMM	0.00
				FMMMM	0.00
	3M2F	18	2.9	MMMFF	0.62
				MMFMF	0.20
				MMFFM	0.05
				MFMMF	0.80
				FMMMF	0.03
				FMMFM	0.00
				FFMMM	0.00
				MFFMM	0.00
				MFMFM	1.20
				FMFMM	0.00
	2M3F	11	1.7	MMFFF	1.10
				MFMFF	0.00
				MFFMF	0.00
				MFFFM	0.50
				FMMFF	0.00
				FMFMF	0.10
				FFMFM	0.00
				FFFMM	0.00
	1M4F	2	0.27	MFFFF	0.27
				FMFFF	0.00
				FFMFF	0.00
				FFFFM	0.00
				FFFMF	0.00
TOTAL		34	5.27		

DISCUSSION

The sex ratio for parental and present generation which was calculated to be 104.85 was significantly higher than the 95.8 value reported in 1983 by Gray, et al for a similar survey done in Ilorin, North Central, Nigeria. This value is however low in comparison with ratio reported for some other subsets of the human population. For Japanese populations, sex ratio of 106.9 was reported (Gray and Morgan, 1976), 107.0 for Brazilians (Gray and Bortolozzi, 1977) and 113.2 for Greeks (Gray et al, 1983). The tendency towards more males has always been reported in developed and developing countries. Although no explanation has been provided by most authors, due to the fact that the observed sex ratios within human populations is complicated by the potential confounding of a large number of factors resulting from 'stopping rules' (Goody et al, 1981) 'Lexian variation', 'Poisson variation' and "Markovian dependency" (Prickles, et al, 1982).

However a reason of higher level of education as one of the reasons for male preference could be proffered especially when one compares the data from Nigerian population in 1983 and those of this survey.

The average size for desired Nigerian families, 2.95 is considered lower than 4.88 children recorded by the earlier study over two decades ago. It is however closer to those from developed and developing countries, 2.76 average for Brazilian population, 2.46 and 2.35 for United States and Japanese populations respectively. This indicates correlation of lower family sizes with development in populations. It is noteworthy that no respondents in Nigeria survey wanted no children family (1983 and present study), other subsets of the human population (United States, Japan and Brazil) had percentages of respondents wanting no children ranging from 2.5 to 8.4 (Gray et al, 1983).

The desired family sizes of two to five children, combinations of both sexes preferred over all female or all male children are similar to reported results for other populations (Gray, et al 1983).

The reported data for all family sizes that most preferred permutation of sexes were those arrangements giving a male child as first-born followed by alternating sexes – mf, mfm, mfmf and mfmfm for families of two, three, four and five children respectively conform with those reported by other studies from different subset of populations.

The data from Nigerian hospitals in last ten years and data from Federal Office of Statistics gives sex ratio of 110.0[Ojo,2003]. This value indicates more males than females and conforms to preferences from respondents in this survey.

The college students used in this study are motivated towards family sizes that are small and manageable enough in order to result in stabilized and healthy population. The overall average of about three children in mfm order is the most preferred. This could be attributed to education and experience of respondents due to their family background. Most of who are from large families of more than five and this resulted in strain on the family resources.

A total of 22.8% of the respondents from Ilorin data preferred five or more children, whereas only 5% preferred same number of children in the current study. Furthermore, the most preferred family consisted of four children – a 2m2f combination with a mfmf order, whereas this study had three family size with 2m1f in mfm order.

The significant differences observed between this survey and similar one done in 1983 at Ilorin could be attributed to economic downtrodden in Nigeria and the campaigning for low family size by Government and NGOs. Furthermore the publicity and availability of various forms of family planning techniques could also be contributing to the preference towards lower family sizes than that was presented more than two decades ago.

The low family size preferences correlate positively with technological advancement and economic development of populations. The most preferred families in the U.S., Brazilian and Japanese studies consisted of two children with a 1m1f combination in a mf order.

Although several factors indicate that the Nigerian population is in a period of continuing growth and the data of 1983 made the authors to project that the Nigerian population will be doubled in 2003 based on expressed preferences of 4.88 children per family could not be achieved. This is due to the fact that the college students are motivated towards family sizes that are small enough to result in a stabilized population.

Furthermore, the Nigerian median age of 16.5 years indicates that a large proportion of the population is either presently or potentially reproductive. This data coupled with projected annual increase of 4-5% tend to lead to seemingly high population. But the limiting factors based on the result of this survey and college educated parents tend to have fewer children than parents with less formal education will be a control on the population. Other factors such as natural selection could also be involved (Ullizi and Zonta, 1993).

The low population will lead to availability of resources, sufficient to go round all members of population in terms of Health care, nutrition, education, housing etc. The data provided in this survey will be suitable for studying sex ratio and desired characteristics of projected families.

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