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Population and Health

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INTRODUCTION

Of numerous attempts to describe population and related problems which are currently under way, a prevalent tendency appears to be to approach the crux of the problems only by quantitative methods. While it appears misleading to view population and related problems disregarding the figures and statistics, many specialists in the field begin to recognize the importance of a qualitative approach, especially when the problems are approached from the angle of medical and public health view points.

It is not an easy task, however, to successfully employ both the quantitative and qualitative methods simultaneously. Also, no specific methods ever seem to have been devised to meet the above objective. Many methods can be tried...including the demographic method, genetic and eugenic method, and others for this purpose. The applicability of a given methodology varies from a country to another, and this could form an obstacle in successfully employing the dual methods. The following will discuss some of the qualitative aspects which need to be considered in the study of population.

QUALITY OF A POPULATION

One of the ways of analysing the quality of a population would be through an observation into the diseased population. A healthy population, according to the broad definition by the World Health Organization, is not only a population free of physical diseases or handicapped conditions but also

a population with mental and social stability and wellbeing.

Physical and mental diseases, nonetheless, occupies a primary position in the evaluation of health status of a given population. This is well understood in the context of the intimate relationships between the physical and mental healths, and especially in terms of the appraisal of a population in its labor force and employment potentialities.

1. Physical Diseases

Pattern and characteristics of diseases affecting a population vary with the degree of development, countries and communities. In Asian countries, for instance, such communicable diseases[1] as typhoid fever, cholera, small pox and tuberculosis warrent attention of the health professions, in addition to several parasitic diseases which require urgent measures for solution, as

Table 1. Typhoid Fever & Paratyphoid

Country	1973
Bahrain	40
China	62
Cyprus	2
Yemen	147
Hong Kong	339
Iraq	?
Israel	151
Japan	306
Jordan	439
Khmer	963
Laos	93
Lebanon	191
Macao	14
Malaysia	?
Pakistan	6,878
Philippines	2,287
Singapore	154
Sri Lanka	2,957
Turkey	2,269

Source: World Health Statistics Report Vol. 27 No. 7, p. 367, 1974.

Table 2. Cholera in Asia

Country	1973(Jan.-June)	1974(Jan.-June)
Bangladesh	174	5
Burma	237	695
India	15,107	9,290
Indonesia	20,997	10,540
Khmer	—	141
Malaysia	329	—
Philippines	1,110	471
Singapore	1	8
Sri Lanka	—	1,579
Thailand	432	1,060
Viet-Nam	20	130

Source: World Health Statistics Report Vol. 27 No. 9. pp. 542-543. 1974.

Table 3. Smallpox in Asia

Country	1973(Jan.-June)	1974(Jan.-June)
Afganistan	23	—
Bangladesh	27,693	12,949
India	49,456	142,282
Japan	1	1
Nepal	109	1,053
Pakistan	5,895	7,085

Source: World Health Statistics Report Vol. 27 No. 9, p. 545, 1974.

Table 4. Prevalence Rates, Helminthic Infection in Korea

Ascaris lumbricoides	58.2%
Hookworms	17.6%
Trichocephalus trichiurus	74.5%
Trichostrogylus orientalis	15.9%
Clonorchis sinensis	4.7%
Metagonimus yokogawai	0.4%
Taenia sp.	0.7%
Hymenolepis nana	0.2%
Enterobius vermicularis	46.6%

Source: Seo, B.S., et al; Korean Journal of Parasitology Vol. 7, No. 1, pp. 53-70, 1969.

shown in Tables 1, 2 and 3. Parasitic infections[2] are widespread in Korea, as shown in Table 4, and constitute frequent topics of discussions when health problem of the country is to be considered.

Malnutrition and malaria constitute health problems of some Asian countries, which are no less important than communicable and parasitic diseases. Recent trend observable in many of the developing countries in the sharp increase in the incidence of cancer cardiovascular diseases, as major causes of death, which threatens to follow the pattern of the developed countries.

It is an admitted fact that an excess population does not always imply an excess labor force, but such a population frequently is accompanied by an unproportionately large burden of diseased population, which in turn, causes loss of labor force.

2. Mental Diseases

Many investigators report the acute rise in the number of patients of mental diseases in accordance with the process of modernization and industrialization, and in some respect, with the development and diffusion of modern sciences. On one hand, recent progress in both the curative and preventive medicines has made the alleviation of mental diseases and adaptation of the patients to daily living possible. While heredity of many of the mental conditions remains a controversial topic, inheritance of some of the mental diseases or disturbances seems a proven fact. Even with the latter cases, consensus lacas among the psychiatrists as to the frequency of such conditions. Table 5 contains data explaining pattern of inheritance of some mental conditions,[3] which suggest a high probability of inheritance of some mental disturbances.

MATERNAL HEALTH

While patterns health vary greatly from one country or community to another, progress in maternal and child health is delayed especially in developing countries. The data on sites of delivery and delivery attendants, contained in Tables 6 and 7, and as obtained through surveys conducted in Korea,[4] reflect only a fraction of information in demand in the field of maternal

Table 5. Hereditary Disease

Disease	Parents			Father or Mother		
	Incidence	Abnormal Personality	Total	Incidence	Abnormal Personality	Total
Mental Deficiency	72%	—	72%	58%	—	—
Schizophrenia	53	29	82	9-10	30	39
Manic & Depressive	63	37	100	33	30	63
Epilepsy	—	—	—	11	19	30
Mental Disorder						
Sexual abnormality	—	—	—	23-30		
Hysteria	—	—	—	13		
				Nervousness		30%
				Mental deficiency		5%
				Epileptic cramp		1%

Table 6. Place of Last Delivery

Place	Number	Per cent
Home	1,872	63.6
Ob-Gyn clinic (including hospital)	934	31.7
Midwife's house	96	3.3
General practioners clinic	41	1.4
Total	2,943	100.0

Source: Kwon, E H. et al: A Study on status of Maternal & Child Health in an Urban Area, Journal of Population Studies, Institute of Population Problems, No. 9, p. 19, 1969.

Table 7. Attendant at Last Delivery

Attendant	Number	Per cent
Ob-Gyn doctor	975	33.1
Mother or mother-in-law	763	25.9
Midwife	493	16.8
Neighbors or relatives	335	11.4
None	144	4.9
Husband	141	4.8
General practioner	68	2.3
Others	24	0.8
Total	2,943	100.0

Source: Kwon, E H. et al: A Study on Status of Maternal & Child Health in an Urban Area, Journal of Population Studies, Institute of Population Problems, No. 9, p. 21, 1969.

health. Also, maternal death rate and maternal morbidity rate are only two of the many indices qualifying status of maternal health of a given community.

1. Maternal Death Rate

In general terms, maternal death rate is higher with the first term pregnancy than the second and third pregnancies. Beyond the third term pregnancy, however, death of mothers becomes more frequent with the progress in the order of pregnancy, and such tendency is remarkable with the 5th or later pregnancy. The outcome of pregnancy also has a close bearing on maternal age. Also known is that the death of women in childbearing ages is more frequent than that of men in the same ages. Table 8 compares maternal death rates between different age and parity groups. where the rates belonging to 20-29 year group with no previous experience of pregnancy have turned out to be the lowest. [5]

According to data published by the Bureau of Statistics, Economic Planning Board, maternal death for Korean women has been computed at 9.1 and 7.8 per 10,000 for years 1966 and 1972, respectively. [6]

Table 8. Maternal deaths by age and parity in 348,393 live births: U.S.A., 1951-1961

	Deaths per 10,000 births
All Mothers	8.7
Under 20: total for age group	5.1
No previous births	4.4
1-3	5.2
4 and more	—
20-29: total for age group	6.6
No previous births	4.1
1-3	5.4
4 and more	13.2
30-39: total for age group	13.8
No previous births	12.2
1-3	11.5
4 and more	17.8
40 and over: total for age group	34.3
No previous births	61.4
1-3	20.0
4 and more	44.1

Source: F. Jaffe and S. Polgar, "Medical Indications for Fertility Control".

2. Maternal Morbidity Rate

As shown in Table 9, iron deficiency anemia and oxalic acid deficiency, together

with the deficient supply of protein and calcium and other minerals, are known to cause major nutritional problems in pregnancy, both in developing countries and in some areas of more developed regions.[7]

Malnutrition and anemia of mothers in developing countries are aggravated not infrequently by infection and complications of more chronic nature. Such maternal complications are made worse by severe physical labor, insufficient supply of food and often by too brief pregnancy intervals. In some countries, malaria and other parasitic infections constitute major factors contributing to the aggravation of anemia and malnutrition.

Table 9. Iron Deficiency Anaemia

Country	Men	Women (Pregnancy)
South America	5-15%	10-35%
Asia	10%	20% (40%)
Middle East		(20-25%)
Europe		10-25%
U.S.A.		10-25%

Source: W.H.O., Technical Report Series 452, 1970.

Table 10. Complicated Deliveries* by Age of Mother, Women's Hospital, Bankok, Thailand, 1964

Maternal Age	Deliveries	Complicated Deliveries	
		Number	Per cent
15-19	1,521	203	13.3
20-24	6,193	693	11.2
25-29	5.956	832	14.0
30-34	2,835	445	15.7
35-39	1,294	257	19.9
40-44	444	104	23.4
45-49	47	10	21.3
	18,291	2,544	13,9

* Includes placenta previa, antepatum hemorrhage, postpartum dystocia, abnormal presentation, fetal distress, toxemia.

Source: Perkin, G.W., Presented at Conference on Family Planning and National Development (IPPF), Bandung, June 1-7, 1969.

Table 11. Comparison of Obstetric Complications Between Grand Multiparas and Others

Complication	Grand multiparas (percent)	Others (percent)
Toxemia	14.2	4.0
Abruptio placentae	2.2	0.6
Placenta previa	1.9	0.6
Transverse lie	2.2	0.2
Breech	9.8	4.3
Mid-forceps	1.5	9.6
Cesarean setion	2.5	4.3
Postpartum hemorrhage	6.1	3.8
Ruptured uterus	0.2	0.03
Maternal mortality	0.9	0.21
Fetal mortality	12.4	3.8

Source: Harry Oxorn, "Hazards of Grand Multiparity," Obstetrics and Gynecology 5 (1955): 150-56; reprinted by permission of Dr. Oxorn

Obstetrical complication and general health status of mothers are known to increase rather sharply with the progress in the order of pregnancy, and this is more so in areas where socioeconomic conditions involving pregnancy and delivery are unfavorable (Tables 10 and 11).[8,9]

HEALTH OF FETUS AND INFANT

For convenience's sake observation into child health aspect is usually divided into several periods, namely, the fetal, hebdomadal (one week after birth), neonatal (28 days after birth) periods and infancy (12 months following birth).

1. Fetal Period

Malnutrition of fetus recently been closed up as one of the major health problems of the fetus. Malnutrition of a fetus can be

brought about either by inhibited blood flow into the placenta caused by cardiovascular diseases or anomalies of the maternal body, or by insufficient supply of nutrient to the fetus owing to the malnutrition of the mother herself. Unfavorable nutrition status of the mother and her anemic conditions will easily affect the body weight of the infant at birth, heighten the perinatal mortality and inhibit development of the brain of a child following birth.

Birth interval is considered to be another factor influencing the body weight at birth. A minimum two years' interval between pregnancies is a requirement for normal level body weight at birth. Birth interval is considered to play an important role in determining the incidence of nurotic conditions following birth and also the intelligence coefficient of a child. Results of some studies indicate that malnutrition inhibits the development of the fetal brain. Another study reports to mothers suffering from chronic malnutrition has increased the body weight of a child at birth.

2. Perinatal Mortality Rate

It is already accepted that maternal age and parity have close bearing on perinatal mortality, and also that these two are controllable through planned fertility. Primiparous perinatal mortality is known to be high, and in the successive pregnancies a high correlation is maintained with perinatal mortality,[10, 11] as indicated by Tables 12 and 13.

A high perinatal mortality accompanies maternal age 17 or below, and the lowest rates are reported with mothers in ages 20-29. Perinatal mortality is especially high with mothers in age 40 or above, several times as high as the perinatal mortality rates computed for those in age 17 or below. Perinatal mortality rates for those pregnancies following an interval of 2 or 3 years (an interval from the termination of the previous pregnancy to the onset of the next) are known to be the lowest. Also known is that body weight at birth is closely associated with perinatal mortality or morbidity in the postnatal periods.

Table 12. Relationship between parity and perinatal mortality rate: Newcastle-upon-Tyne

Pregnancy number	Number of births	Perinatal deaths	Perinatal mortality rate/1000 births
1	1,405	34	24.2
2	1,314	35	26.7
3	832	25	30.0
4	474	16	33.8
5	277	14	50.5
6	192	12	62.5
7	95	7	73.7
8 and over	122	11	90.2
Total	4,711	154	32.7

Source: Russell et al. (1963).

Table 13. Perinatal Mortality in Relation to the Parity of the Mother, Government Maternity Hospital, Hyderabad, July 1957 to September 1958

Parity of mothers	Total births	Perinatal loss	Perinatal mortality per 1,000 births
1st	2,778	231	83.1
2nd to 4th	6,331	215	33.0
5th to 7th	3,245	168	51.7
8th and above	1,280	89	69.5
Total	13,634	803	58.8

Source: Z. Mehdi, P.M. Naidu, and V. Gopal Rao, "Incidence and Causes of Perinatal Mortality in Hyderabad, Andhra Pradesh, India," Indian Journal of Medical Research 49 (1961): 905.

Table 14. Neonatal Mortality Rates in England and Wales

Mother's parity	Social class	Neonatal deaths per 1,000 live births					
		1949			1963-64		
		Mother's age in years					
		Under 25	25—29	30 and over	Under 25	25—29	30 and over
1	Ⅰ and Ⅱ	12.3	14.5	21.0	9.6	9.4	12.6
	Ⅲ	15.8	16.8	24.0	12.2	10.3	14.8
	Ⅳ and Ⅴ	18.7	17.9	28.6	13.3	14.1	16.4
2,3	Ⅰ and Ⅱ	14.0	10.5	12.0	8.8	7.3	8.8
	Ⅲ	15.7	12.8	15.0	11.1	9.4	11.7
	Ⅳ and Ⅴ	18.9	14.5	17.3	12.1	10.2	12.8
4 and over	Ⅰ and Ⅱ	(32.3)	12.8	18.3	(12.8)	11.9	10.9
	Ⅲ	29.4	16.3	18.1	16.5	14.5	15.0
	Ⅳ and Ⅴ	24.4	17.0	22.7	16.3	15.6	15.8

Source: Quoted from Omran, A.R.: The Health Theme in Family Planning, Calorina Population Center, p.20, 1971.
Ⅰ, professional Ⅱ, intermediate Ⅲ, skilled workers Ⅳ, partly skilled workers Ⅴ, unskilled workers

3. Neonatal Mortality Rate

In general, neonatal deaths can be termed the delayed fetal deaths. Again, the number of pregnancies experienced and other social factors are known to be closely associated with neonatal mortality, which in part is reflected in Table 14.[12)]

4. Infant Mortality Rate

It seems well accepted that not only housing, environmental sanitation, nutrition and exposure to communicable diseases, but also maternal age and number of pregnancies

Table 15. Post-Neonatal Mortality Rates in England and Wales

Mother's parity	Social class	Post-neonatal deaths per 1,000 live births					
		1949			1963—64		
		Mother's age in years					
		Under 25	25—29	30 and over	under 25	25—29	30 and over
1	Ⅰ and Ⅱ	4.6	4.2	4.4	3.9	2.6	2.4
	Ⅲ	9.7	5.7	5.9	4.4	2.7	2.9
	Ⅳ and Ⅴ	12.7	10.3	10.4	6.1	5.1	3.6
2,3	Ⅰ and Ⅱ	8.6	5.8	5.7	4.3	3.9	2.9
	Ⅲ	16.6	11.1	8.1	9.2	4.5	3.3
	Ⅳ and Ⅴ	23.7	15.1	11.2	10.2	6.0	5.5
4 and over	Ⅰ and Ⅱ	(24.2)	14.2	10.6	(10.3)	(4.7)	4.4
	Ⅲ	39.9	20.7	15.6	17.3	10.2	6.2
	Ⅳ and Ⅴ	36.2	27.0	18.7	15.4	12.5	8.1

Source: Quoted from Omran, A.R.; The Health Theme in Family Planning, Calorina Population Center, p.23, 1971.

Table 16. Infant Mortality Rate per 1,000 Live Births in Korea

Urban			
Investigation	Area	Year	I.M.R.
Kwon, E H.	Sungdong Gu, Seoul	1962—64	35.5
Yang, J.M.	Yun Sei Area, Seoul	1964—67	35.9
Kwon, E H.	Sungdong Gu, Seoul	1966—67	32.2
Rural			
Investigation	Area	Year	I.M.R.
Huh, J.	Kyunggi Do	1952—57	125.0
Park, H.J.	Whole area	1954—59	82.9
Yun, D.J.	Gae Jeong, Chun Buk	1958—61	63.9
Lee, S.J.	Nam Won, Chun Buk	1961—65	59.6
Lee, S.K.	Kyungsan, Kyung Buk	1970—71	42.2

Source: Cheung, M.H. and J.W. Hong: A Review of the Reported Data on Maternal and Child Health in Korea, The Korean Journal of Public Health, 11:329-330, 1974.

experienced constitute important factors affecting infant mortality rates, or the rates of deaths during infancy or 12 months following birth of a child. Table 15 explains part of the relationship between infant death rates in young mothers and with multiparous births.[13]

The higher the level of health status of a given county of a community, the lower are the neonatal or infant mortality rates. It is reported that neonatal mortality occupies about 80 per cent of the deaths in infancy in developed countries, while in less developed or developing countries, the former is reported to make up only about 50 per cent. It is also known that socioeconomic variables play important roles in determining the rates of deaths during infancy. As shown in Table 16, infant death rates in Korea still remains on a conspicuously high level, with great variations between the urban and rural areas.[14-22] The decline in infant death rates during the 1960's, for the most part, is attributed to the improvement in the social and economic conditions in this period.

FAMILY SIZE AND CHILD HEALTH

In this paper, the family size is synonymous with the number of living children of a family. It is widely accepted that family size plays an important role in the health status of children.

1. Morbidity Rate

Of the numerous findings the relationship between family size and morbidity, Table 17 reveals the incidence of communicable gastritis as related to family size.[23] According to this set of data, morbidity rate per family as well as per capita increases with the increase in family size, or the number of living children.

Diseases or disorders attributable to malnutrition constitute one of the major health problems of school children throughout the world. Results of a survey conducted in

Table 17. Incidence of Infectious Gastroenteritis by Family Size, Cleveland, Ohio, 1964

Family Size	Person Days	Family Days	Number of Family Illnesses	Illnesses per Family/Year	Illnesses per Person/Year
3	38,991	12,997	104	2.92	0.97
4	269,604	67,401	869	4.71	1.18
5	399,450	79,890	1,671	7.63	1.53
6	201,396	33,566	1,044	11.35	1.89
7	36,491	5,213	189	13.23	1.89
8	31,104	3,888	180	16.90	2.11

Source: Dingle et al, Press of Western Reserve Univ., 1964.

Table 18. Malnutrition in Preschool Children Grouped According to the Number of Living Children in Their Families, Candelaria, Colombia, 1963.

Number of Living Children/Family	Total Number of Children	Malnourished Children	
		Number	Percent
1	75	24	32.0
2	185	63	34.1
3	178	73	41.0
4	204	83	40.7
5	136	57	41.9
6	122	57	46.7
7	62	25	40.3
8 or more	106	49	46.2

Source: Wray and Aguirre, J. Trop Pediat, 15, 1969.

Colombia toward preschool children, both in urban and rural areas, are quoted in Table 18, which suggests that family size might have a close bearing on the incidence of malnutrition.[24] Other socioeconomic factors, in addition to family size, are known to play important roles in the incidence of malnutrition. Family size, however, remains one of the most important factors in developing countries, where per capita food expenditure is greatly affected by large family sizes.

Based on a number of studies published recently, the possible relationship between the incidence of premature births, growth and development of children and their intellectual development and size of a family is beginning to be disclosed. A survey conducted in Thailand,[25] suggests incidence of malnutrition is well correlated with interval, as demonstrated in Table 19. The incidence of malnutrition where succeeding interval is less than 24 months nearly doubles that in case of births followed by no further pregnancies.

Table 19. Malnutrition in Preschool Children by Interval until Next Sibling, Bang Pa-In, Thailand, 1969

Interval between Child and Next Sibling (Months)	Total Population	Malnourished Children	
		Number	Percent
Less than 24	43	30	70
more than 24	49	26	53
No child following	119	38	37

Source: A Health and Demographic Survey of Bang Pa-In Ramathibodi Hospital Faculty of Medicine, 1969.

2. Death Rate

Table 20 introduces only an example of the numerous studies designed to disclose the possible relationship between family size and rates of child deaths, with nearly 500,000 children as the objects of the study.[26] Analysing the death of children within 5 years following their births, based on

Table 20. Fetal Mortality and Mortality among Children Under 5 Years of Age by Infant's Birth Rank, New York State, Exclusive of New York City, 1950-1952.

Infant's Birth Rank	Fetal	Neonatal	Post-Neonatal	Early Childhood
Total	15.9	16.3	5.3	3.5
First	16.6	15.8	3.8	2.7
Second	11.3	15.0	4.8	3.2
Third	15.4	16.2	5.9	3.6
Fourth	18.4	17.8	6.8	4.7
Fifth	22.8	20.9	8.2	4.8
Sixth and higher	32.8	23.3	11.9	6.8
Not stated	(314.7)*	—	—	—

- Rates based on less than 100 individuals are not shown

* Based on at least 100, but less than 1,000 individuals; rate high but number of cases low.

Source: Chase, Helen C. New York State Department of Health, 1961.

death certificates, this set of date discloses that a close association can be established between the death rates and birth order. Environmental factors seem to exert a relatively higher influence upon death of infants, especially the deaths occurring in

Table 21. Family Size and Measures of Children's Physical Growth and Development

Family size (number of children)	Mean height (in centimeters) and weight (in kilograms) at about 11.25 years			
	Boys		Girls	
	Height	Weight	Height	Weight
1	144.2±.37	37.01±.36	145.3±.43	38.67±.45
2	143.4±.34	35.23±.33	144.8±.37	37.08±.39
3	142.4±.48	34.13±.46	143.9±.54	36.15±.56
4	142.8±.76	34.63±.74	142.7±.74	34.62±.77
5+	140.2±.80	32.47±.78	140.4±.98	32.76±.02

Source: J. A. Scott, "Inteligence, Physique, and Family Size," British Journal of Preventive and Social Medicine, 16 (1962): 166.

Table 22. Family Size and Measures of Children's Physical Growth and Development

Family size (number of children)	Mean height (in centimeters) and weight (in kilograms) at about age 12			
	Boys		Girls	
	Height	Weight	Height	Weight
1	147.9	39.5	150.3	43.4
2	147.5	39.7	149.1	40.7
3	145.9	37.0	148.9	40.4
4	145.1	36.9	145.6	36.8
5+	143.7	35.7	145.8	37.9

Source: M. W. Grant, "Rate of Growth in Relation to Birth Rank and Family Size," British Journal of Preventive and Social Medicine 18 (1964): 37.

in fancy following the neonatal period.

3. Growth and Development

Table 21 discloses the possible correlation between the number of children and physical growth and development of children of both sexes, based on data collected in England.[27] Much similar pattern can be observed with data contained in Table 22.[28] Relationship between body height and parity appears to be conspicuous with those who belong to lower socioeconomic classes, rather than with those who can be classified as belonging to upper socioeconomic.[29]

4. Development of Intelligence

While a number of studies so far have attempted to disclose the possible relationship between the number of children and mental development measured in terms of intelligence quotient, more definitive methods are yet to be developed. It appears so far that IQ drops considerably with the increase in the number of children, throughout all socioeconomic classes. Results from a recent study appears to be insistent on the care of children ages 8 or below.

Quality of cares for children is apt to be diluted with large families, so is the opportunity for children to contact parents or adults. Such factors as crowded living, low family income and insufficient supply of nutrients are regarded as contributing to the delay in development of mental capacity.

Table 23 compares results from the Scotland study of mental capacity with the data drawn from about 10,000 newly enlisted soldiers in England, which suggests a visible correlation between size of family and intellectual development of children.[30] Similar findings have been obtained from study carried out in Minnesota, U.S.A., as shown by Table 24, which suggest that average intelligence coefficient (IQ) is closely associated with family size.[31]

FAMILY PLANNING AND MATERNAL AND CHILD HEALTH

The traditionally high infant and child death rates inherited by most of the developing countries appear to constitute a cons-

Table 23. Mean Standard Scores of Recruits on Mental Tests of Different Types, by Number of Siblings, Great Britain, 1946.

Number of Siblings	Frequency (Percent)	General	Verbal-Educational	Spatial-Mechanical	Physical	Scottish Mental Survey
None	13.3	106.6	107.2	104.6	102.3	105.8
1	22.0	105.8	105.8	104.3	101.6	105.1
2	18.6	101.8	101.7	101.7	100.8	101.6
3	13.8	98.8	98.5	99.5	99.8	98.6
4	10.4	94.9	94.7	96.7	98.7	95.8
5	7.8	93.2	92.9	95.2	97.7	94.2
6	5.2	92.4	92.6	93.5	96.4	92.8
7- 8	5.5	88.9	91.6	92.9	96.5	91.8
9-11	2.8	87.9	88.2	90.6	96.2	90.1
12-17	0.4	87.2	86.2	91.6	95.8	86.5

Source: Vernon, P.E., Eugen Rev, 43, 1951.

Table 24. Mean I.Q. of Children, by Family Size, Minnesota, U.S.A., 1910-1960

Family Size	Number of Families	Number of Childrn Tested	Mean I.Q. of Children
1	141	141	106.37±1.39
2	370	583	109.56±0.53
3	287	606	106.75±0.58
4	122	320	108.95±0.73
5	57	191	105.72±1.15
6	21	82	99.16±2.17
7	7	39	93.00±3.34
8	4	25	83.80±4.13
9	5	37	89.89±2.94
10	2	15	62.00±7.55

Source: Reed, Elizabeth W., and Sheldon C. Reed, W.B. Saunders Co., 1965.

iderable barrier to the acceptance of family planning methods for selfpromoted fertility regulation by mothers who fear loss of children. Reversely, a number of studies suggest that contraceptive practices and regulated birth intervals greatly contribute to the promotion of survival rates.

The above findings appear to form the basis for recent trend of thinking that soon or later, a family planning program will face a limitation as to its acceptability, unless it has a strong footing on health aspects or its practice is urged in close association with the health benefits to be derived from it. Favorable attitudes of parents towards family planning can be formed when they are approached by a program of family planning with health elements as integral part of the program.

For this reason, it is desirable to have programs of family planning well integrated with maternal and child health programs. In doing so, a family planning program would require additional personnel, techniques and facilities specializing in the health aspects of program activity. The advantages of a family planning program well integrated with that of health services of mothers and children include better utilization of funds, increased substantiality of an organization, better and systematic program supervision, efficient utilization of available facilities and recruitment of larger health as well as family planning clientele.[32]

CONCLUDING REMARKS

After reviewing the importance of both the quantity and quality aspects of a population, one could easily see the need for and advantage of an integrated family planning and child health program. Maternity centered family planning, recently adopted and advocated by a number of developing countries, is but one example of the different approaches proposed by specialists in the field. The quantitative as well as qualitative approaches are essential to the solution of population problems. At the same time, due attention must be given to the question of selection, in trying to design new methodologies for attacking population problems.

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