BIRTH AND DEATH INDICATORS IN THE ISLAMIC REPUBLIC OF IRAN IN 1984 AND 1986

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ABSTRACT

Birth and death indicators were examined through retrospective surveys conducted in 1985 and 1987 in the Islamic Republic of Iran, reviewing 1984 and 1986 events, to obtain infant mortality rate (IMR) and other necessary indicators for health planning and evaluation.

Comparison between 1985 and 1987 surveys revealed:

1. No major change in crude death rate (6.3 per 1000 in 1987 survey) had occurred.

2. IMR was 51 per 1000 live births in 1987 survey.

3. The proportion of death rate in children under 5 year to total death has dropped in rural areas from 55 per 100 to 48, and in towns froms 32 to 29.

4. Still about 20 and 22 per 100 deaths in urban and rural areas respectively in under 5 children are due to diarrhea; the percentage of those due to infectious diseases in the same areas and age group, is 30 and 32 per 100.

5. Birth rate has dropped from 40.4 to 37.7 per 1000; as a result, natural growth of population has decreased from 3.40 per 100 in the 1985 survey to 3.14 in 1987.

6. Maternal mortality rate has dropped considerably in rural areas, from 23 per 10,000 live births to 18.

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INTRODUCTION

To examine the country's health condition both for evaluation of health programs carried out and planning of future programs, it is necessary to obtain indicators which are related directly or indirectly to the health of the society; the most important among these are birth and death indicators. Complete record of the latter data is not available in Iran, hence one should undertake occasional surveys to collect necessary information.

There are two ways for the above mentioned approach; questioning about past events (retrospective) or continuous survey of future events (prospective). It is obvious that the second method is expensive but more precise.

In recording the past events (e.g. those of the previous year) the conception of exact length of one year may be confusing, due to illiteracy or low literacy of those questioned: they might have forgotten events occurred. Therefore it is incumbent to coincide the survey timing with important occasions, like festivities or school openings, so that the family head may remember events occurring between them.

As such, to obtain essential vital statistics for the whole country, a comprehensive survey was launched in April, 1985 in rural areas, covering the one-year period between two vernal equinoxes of 1984 and 1985, on which the most popular Iranian holiday is commemorated.

The same was done in October 1985 for urban areas, covering the one year period between school openings of 1984 and 1985. These surveys comprised questioning of 10% of the country's total population. The result of these two surveys have already been published.[1,2]

After three years since the above mentioned studies and the implementation of new health programs, it was decided to conduct a new survey to update birth and

death rates by asking from the households about these vital events. The period considered for these events was from September 23, 1986 through September 23, 1987 (the opening day of schools nationwide) so that the probability of confusing the dates of births and deaths is minimal.

The objectives of this survey were first to clarify the trends of change in these rates and second, to inform the planners of the effectiveness of the current programmes and make changes if needed in the health strategies.

METHODS

The present survey was aimed at measuring the birth and death rates in the country according to urban and rural areas.

The sample size has been estimated so that with 95% confidence interval, the estimated error for infant mortality rate does not exceed 5 per thousand live births in rural and urban areas.[3]

With respect to the previous figures for infant mortality rate (about 50 per 1000 for the country nationwide) and crude birth rate (40 per 1000) the sample size was about 190,000 individuals in urban and 190,000 in rural areas.

Taking into consideration the results of the 1986 census,[4] in which the urban and rural population were 27 million and 23 million respectively, it was decided that a sample size of 1% be selected. In this way, the sample size for urban and rural population could be 270,000 and 230,000 individuals, respectively. In order to select 1% of the households, firstly the list of all households which were prepared for 1985 surveys (in particular in the urban areas, taking into consideration the growth of the population in the vicinity of the cities) was updated. Then the sample size of 1% for each district, according to rural and urban areas, on the basis of 1986 census was identified.

Due to the increase of sample size by 42% in urban areas (from previous 190,000 to 270,000) and 21% in rural areas (from 190,000 to 230,000), to facilitate the implementation of the survey, 50 households were considered as a cluster. Then the number of clusters required for each district were determined. Based on systematic random sampling an index household for starting point was selected from the clusters. The interview started from the index household in the clusters, and continued for the remaining households. The sampling interval in this study with respect to the sample size of 1% and the size of each cluster (50 households) equals to 5000 households (50 × 100).

The studied sample for rural areas was 235,586 individuals and for urban areas 276,190 which is 24% and 45% greater than the sample size estimated by

simple random sampling respectively. This will decrease to some extent the fear of inter-correlation in the cluster.

In addition, by providing the list of the people, households similar in terms of socio-economic status will be placed in a line. In fact the community was divided into classes of 5000 households each. From each class, a cluster of 50 households was selected. By this way the variance of variable under study will be decreased considerably.

As the most crucial point in the questionnaire was registration of deaths occurring during the first few days of life and/or no differentiation between live and still births by households, particular instruction was given to interveiwers in this respect, to minimize the probability of such errors.

The supervisors and interviewers in this study were among high and intermediate level employees of the Regional Health Organization who had adequate experience for implementation of such surveys. In addition to the experience, they were trained for filling the questionnaire and tabulating the results.

Field interview was conducted from October 7 through October 22, 1987, and the results were tabulated by the District in the period between October 23 through November 6, 1987.

The dummy tables were designed to show the distribution according to different districts, rural and urban areas. The tables were then sent to the Headquarters for Extension of Education and Research at the National Health Network. These tables were controlled at the Headquarters for accuracy and were analyzed when it was assured in this regard.

Table I shows the important indicators as derived from 1985 and 1987 surveys.

RESULTS

1. 63% of males and 41% of females over 15 years of age are literate in the country. The literacy rates are 75% for males and 55% for females in urban areas and 47% for males and 21% for females in rural areas. Considering the importance of literacy of women in promoting the health status of households, low women literacy rate in general and in rural areas in particular, would be taken as a great burden in promoting health, which should be given serious consideration by the Literacy Compaign Organization (this information has been adopted from the results of the 1986 census,[4] not from this survey). However, comparing the above figures with the results of the survey conducted in 1985 in which literacy was studied shows an increase ranging from 4% (in rural women) to 8% (in urban women) which is admirable.

2. Crude death rate has not changed compared with

256

Table I. Important indicators of Mortality and Fertility in the Islamic
Republic of Iran in 1985 and 1987.

Indicator	Rural		Urban		Total	
	1985	1987	1985	1987	1985	1987
Literacy rate among men> 15 years	41	47	68	75	55	63
Literacy rate among women> 15 years	17	21	47	55	33	41
Crude Death Rate/1000	7.2	7.3	5.4	5.4	6.4	6.3
Neonatal Mortality Rate	24.8	27.1	15.1	18.2	20.7	22.7
Infant Mortality Rate	70.8	66.9	33.1	34.8	50.7	51.0
Child Mortality Rate	6.2	5.2	2.8	3.1	4.1	4.1
Under 5 Mortality Rate	21.7	20.4	9.8	10.5	14.9	15.4
Under 5 proportionate mortality rate	54.9	47.6	31.7	28.5	41	38.6
Proportionate mortality from ˜diarrhea in under 5 children	22.3	21.9	24.0	19.6	23.2	21.1
Proportionate mortality from infectious disease in the under 5 years age group	29.4	32.3	22.0	29.0	25.6	31.2
Life expectancy at birth M F	*	65.0 68.0	*	66.0 70.0	*	65.5 69.0
Maternal mortality rate/10,000	23.3	18.4	7.7	6.3	13.6	12.0
Crude birth rate	43.4	41.6	37.6	34.5	40.4	37.7
General fertility rate/10,000	*	234.0	176	167.0	186.3	195.0
Percentage of L.B.W.**	*	14±2	*	10±2	*	12±2

* Not known/calculated
** In Zanjan Province

the 1985 survey.

3. Infant Mortality Rate in urban areas is about 35 per 1000 and in rural areas 67 per 1000. Comparing them with the 1985 survey shows no major change in urban areas, but a decrease of 4 per thousand in rural areas. However, as the birth rate in rural areas has not decreased as it did in urban areas (discussed below), the overall Infant Mortality Rate is 51 per thousand as it was in the 1984 survey.

4. 29% and 48% of deaths in urban and rural areas respectively belong to the under 5 years age group. The interesting point is that this rate has not changed in urban areas in comparison with the 1985 survey, but has decreased considerably in rural areas (from 55 to 48).

5. As usual, about 20% and 22% of deaths in the under 5 years age group are due to diarrhea in rural and urban areas respectively. The percentage of deaths due to infectious diseases in this age group in rural and

257

urban areas is about 30%, the results of which in comparison with 1984 shows a 7% increase in urban areas and 3% increase in rural areas.

6. The important point is the reduction of births in urban areas from 37.6 to 34.5, and in rural areas from 43.4 to 41.6 and the overall reduction shows a change from 40.4 to 37.7 per thousand. Consequently, the natural population growth is reduced from 3.40% per year in 1984 to 3.14% per year.

7. The Maternal Mortality Rate is 6 per 10,000 in urban areas and 18 per 10,000 in rural areas, which shows a considerable decrease in rural areas (from 23 to 18 per 10,000).

DISCUSSION

Although not more than 3 years have elapsed since the strengthening of health programs such as vaccination, control of diarrheal diseases and extension of health houses in rural areas, promising effects by decreases even so little in infant mortality rate in rural areas, under 5 mortality rate, percentage of deaths due to infectious diseases and maternal mortality rate are evident.

It is hoped that by the Grace of God and by extension of the above mentioned programs and full execution of the basis of Primary Health Care and in particular, community contribution and intersectoral coordination, the aforementioned health indicators will be improved significantly.

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