



FERTILITY AND MORTALITY

FERTILITY AND MORTALITY. Fertility and mortality in a population depend on sociocultural history, sanitary conditions, and biological factors. Although the last element is generally similar in all human communities, sociocultural and sanitary factors vary considerably.

FERTILITY

Fertility is measured by a combination of four classical parameters: birthrate (number of births per 1,000 total population); fertility rate (birthrate per 1,000 women fifteen to forty-nine years old), reproduction rate (average number of girls born per woman), and actual fertility (average total number of births per woman). The Persian fertility rate a half-century ago was equivalent to maximum natural growth. Such natural growth rates were established for Persia and several comparable countries between the years 1950 and 1955, before the broad introduction of birth control ([Table 1](#)).

In Persia during the period of the four national censuses (1956, 1966, 1976, 1986) and the comprehensive survey of 1991 it was possible to gauge both absolute numbers and statistical magnitude from annual birth registers at the Office of vital statistics (Edāra-ye ṭabt-e aḥwāl; Nahāpetiān and Ḳazāna; Majdābādī and Kāzemīpūr, 1992; idem 1993). In addition, the study of demographic growth conducted in 1973-76 by the Statistical Center of Iran (Markaz-e āmār-e Īrān, 1977a; idem, 1977b; idem, 1993), fertility studies of Tehran and four rural areas by the Institute of social studies and research at Tehran University in 1965-66 (Chasteland, 1968; idem et al.), and a



demographic survey conducted by the Faculty of hygiene (Dānešgāh-e Tehrān) have provided reliable data. Estimated birthrates for the period between 1900 and 1951 have been obtained from back projections.

It can be concluded from these sources that until 1986 the Persian birthrate was high (as high as 48-49 per 1,000), compared to the world rate (Table 2); nevertheless, surveys and the census of 1976 show that the rate had dropped from 1966, as a result of official policies on family planning (q.v.). Having risen in 1986, it dropped again, reflecting difficult economic conditions caused by the war with Iraq, as well as reintroduction of rigorous family planning (*Jam'iyat*, 1992). In 1994 the Persian birthrate equaled the average for Asia and Central America, 26 to 30 per 1,000 population, reflecting a continued very high fertility rate.

Whereas birthrates are based on total population, a large proportion of which plays no role in human reproduction, fertility rate, reproduction rate, and total fertility provide more precise measures, for they are based only on the segment of the population that determines human fertility, women aged 15 to 49 years. The Persian fertility rate, estimated at 240 in 1956, had dropped to 130 in 1991, compared to about 100 for Asia as a whole (Amani, 1970, p. 19; United Nations, 1991, p. 174; Table 3). In 1986 the unadjusted Persian reproduction rate was 3.12, compared to 1.74 for Asia as a whole in 1990 (Zanjānī, p. 101; Table 4). Average total fertility dropped from 7.90 in 1956 to 6.39 in 1986 (Zanjānī, p. 101; Table 5; see FAMILY PLANNING).

MORTALITY

Mortality, the number of deaths per 1,000 population, has declined rapidly in Persia since the early 20th century, a significant factor in overall population growth. In contrast to birthrates, death rates are difficult to establish, for they are much less fully registered, so that estimates of the various relevant measures play a much more important role. A study of historic trends in Persian mortality since 1900 reveals a high rate (36-41) for the first quarter-century, owing to epidemics, famines, natural catastrophes, and local conflicts and war, events also characteristic of Persian life before 1900 (Amani, 1982, pp. 176-77). A United Nations (1990, p. 398) estimate put the mortality rate for the period 1950-55 at 22, approximately the same as that estimated for the preceding five years.

Three indexes of mortality will be examined here: unadjusted death rate,



infant mortality, and life expectancy at birth. In 1992 the Persian death rate ranked in the middle of those from a selected group of Muslim countries but higher in relation to Persia's immediate northern neighbors; statistics on the latter, however, having been gathered according to the Soviet system, raise some doubts (Table 6, Table 7).

Unadjusted death rates. According to three reliable regional studies (Majdabādi and Kāzemīpūr, 1977; Markaz-e āmār, 1977a; Dānešgāh-e Tehrān), in the early 1970s the rural death rate in Persia was approximately double the urban rate (Table 8). In other sources estimates of the unadjusted death rate vary. For example, estimates based on deaths registered at the Office of vital statistics, according to which the national rate dropped from 7 in 1966 to 4 in 1986 (*Sāl-nāma1345*, *Sāl-nāma1356*, *Sāl-nāma 1365*; Table 9), are obviously too low: The study of demographic growth between 1973 and 1976 (Dānešgāh-e Tehrān) yielded an unadjusted death rate of 11.5 per 1,000, corresponding to an average of 428,851 deaths a year, whereas the average number of deaths registered at the Office of vital statistics for the same period was 154,000, reflecting an underregistration of 64 percent. Nevertheless, a few indexes suggest that, beginning in 1989, after the end of the war with Iraq, comprehensive registration of deaths improved. The percentage of deaths registered late dropped from 63 percent in 1976 to 10 percent in 1991 (Table 10). On the other hand, the high ratios of male to female deaths, which must actually be between 1.1 and 1.2, reflect continued underreporting of female deaths (Table 11). The higher death rates among men in 1981-87 probably also reflect losses in the war with Iraq.

It should be noted, too, that the proportion of deaths registered in rural areas has been and continues to be proportionally lower than the rural population, evidence that rural deaths are underreported (Table 12). Newborn deaths in particular are frequently not reported or registered because the infants are born at home and live only a short time.

Infant mortality. In Persia deaths of children less than one year old represent a large component of total deaths. The study by the Faculty of hygiene in 1973 (Dānešgāh-e Tehrān) revealed that 26 percent of deaths in cities and 46 percent of those in rural areas occurred under one year of age. The proportion of deaths during the first four weeks after birth was 30 and 38 percent of total infant deaths of children less than one year old in cities and rural areas respectively. This largely unreported category of births and deaths can thus upset calculations, not only of infant mortality, but also of unadjusted birth



and death rates.

Infant mortality is a more precise measure of overall mortality, for it is not affected by the age structure of the population. The earliest such calculations in Persia were obtained from a field study of 173 villages southwest of Tehran in 1950: 217 deaths per 1,000 among infants less than one year old (Nadīm, p. 58; see [Table 13](#)). In 1966 total infant mortality for Persia was 101 per 1,000 in urban areas, 162 in rural areas, and 139 overall (Chasteland, 1967, p. 2); the last figure corresponds closely to that from the United Nations (1990) for 1965-70, 143 per 1,000. According to two official surveys conducted immediately before the revolution of 1978, infant mortality had fallen considerably in the preceding decade, and a more recent survey, in 1991, shows that it has dropped farther since the revolution ([Table 14](#)).

Life Expectancy. During the period of the first three national censuses (1956, 1966, 1976) it can be assumed that life expectancy in Persia rose; the general rate of survival can be obtained by dividing the population ten years old and older by the total population from the preceding national census ([Table 15](#)). Different other estimates of life expectancy at birth have confirmed this rise (Mīrzā'ī, p. 118; Mohājerānī, p. 99; [Table 16](#), [Table 17](#), [Table 18](#)).

It would be reasonable to assume that current infant mortality and life expectancy are of the same magnitude as the averages for Asia as a whole in 1991: 65-70 per 1,000 and sixty-five years respectively, but in fact the general structure of mortality by age and gender corresponds more closely to the Western model, levels 18-19 in the Princeton regional mortality tables, and will toward the year 2000 approach levels 20-21 (Coale and Demeny, pp. 168-70). Yet these measures are still far from those in advanced industrial countries, where infant mortality has fallen to 7 per 1,000 and life expectancy at birth is eighty years for women and seventy-three years for men (United Nations, 1991, p. 142).



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