

THE DISTRIBUTION OF POPULATION AND MEDICAL FACILITIES IN SAUDI ARABIA

With 2 figures and 3 tables

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Zusammenfassung: Die Verteilung der Bevölkerung und der medizinischen Einrichtungen in Saudi Arabien

Es wird die Beziehung zwischen der Bevölkerungsverteilung und den medizinischen Einrichtungen in Saudi Arabien erörtert. Außer der geographischen Verteilung der medizinischen Dienste werden die Arbeitsbelastungen der Krankenhäuser untersucht, um auf die regionalen Ungleichheiten im Standard der medizinischen Einrichtungen im Lande aufmerksam zu machen. Im Bereich der Bevölkerungsuntersuchung fußt die Studie weitgehend auf dem „Census of Saudi Arabia“ 1974, während die medizinischen Daten dem vom Gesundheitsministerium zur Verfügung gestellten publizierten (1974/1975) und unpublizierten (1977) Quellen entnommen sind.

The aim of this paper is to discuss the relationship between population distribution and medical facilities in Saudi Arabia. In addition to the geographical distribution of medical services, the article will study hospital work-loads so as to bring into focus the regional inequalities in the standard of medical facilities in the country. In the area of population study the paper has made considerable use of the 1974 Census of Saudi Arabia, while the medical data are drawn from published (1974 & 1975) and unpublished (1977) sources provided by the Ministry of Health. Population estimates for 1977 were prepared so as to fit the medical statistics (see Table 3).

Population distribution

According to the 1974 Census, the Kingdom of Saudi Arabia had a population of 7 millions, while population estimates for 1977 were put at 7.5 millions (Table 3). The results of the 1974 Census were mapped using the dot method, while large urban agglomerations of 50,000 inhabitants and over were shown by proportional circles (Fig. 1). The population map of Saudi Arabia reveals an unevenness in distribution, and the southeastern area of *Al-Rub' Al-Khali* or Empty Quarter is virtually uninhabited. The distribution of population in this predominantly arid environment is closely associated with the water sources. The population map of Saudi Arabia reveals three major axes of population scatter with a north-south orientation. These axes are the western including the southwest (Hejaz and Asir), the central (Najd), and the eastern or the Arabian Gulf littoral (*Al-Sharqiya*) (Fig. 1). The distribution of large urban centres also follows similar patterns. However, extensive territories, particularly to the north and south, are either very slightly populated or uninhabited because of rugged topography and severe arid conditions.

With a total area of 2.25 million Km.², the Kingdom

of Saudi Arabia had an average population density of 3.1 persons per Km.² in 1974. However, the physiological and agricultural densities (1974) were calculated at 234 persons per Km.² and 1,558 persons per Km.² respectively, indicating exceptionally high densities because of limited productive land. The most densely settled part of the country is the southwestern region which is also the most humid. The average population density in parts of the western and southwestern regions is 27 persons per Km.², while in the central region the density is 4 persons per Km.², and in most of the eastern and northern regions the density ranges between less than 1 person and 3 persons per Km.² The western, southwestern and central regions sustain more than 75% of the national population, with lesser concentrations in the east and north (Figs. 1 & 2). However, the eastern region because of its huge oil deposits is likely to witness a redistribution of population in its favour in the near future. The latter region has already shown a greater shift towards urbanism (Table 1) because of the concentration of the oil industry, while the recent development of Jubail industrial complex will lead to further population concentration. Jubail industrial complex is designed to accommodate about 175,000 inhabitants by 1985 and no less than 375,000 by the first decade of the next century. It is estimated that the implementation of the first phase at Jubail will cost some U.S. \$ 20 billion. This is a manifestation of the profound socio-economic changes which are taking place in the Kingdom of Saudi Arabia.

Accordingly, modes of living have been changing rapidly during the last two decades. The most conspicuous of these changes is that nomadism has been on the decline, so that the proportion of nomadic population in the country had dropped from 60% in 1932 to 27% according to the 1974 Census. Utilizing its oil revenues the government has made considerable efforts to settle nomadic groups both in rural and urban projects. However, the northern region with 64% of its population being classified as nomads (1974 Census) has still the highest concentration of migratory people in the country. As will be explained later this is probably one of the reasons that the provision of health services in this region is by far the poorest vis-à-vis the rest of the country. In other regions the proportion of settled population varies between 75% and 90% (Table 1). The concentration of population in urban centres is highest in the eastern (62%), western (57%) and central (57%) regions. For the country as a whole the proportion of urban population grew from 15% in 1963 to 45% in 1974. As the chances of developing large-scale agriculture are rather limited because of water shortage, the economy of Saudi Arabia will be geared towards urban-oriented types of economic activities. This will pave the way for improved health services as the delivery of such facilities is made more difficult in rural rather than in urban areas.

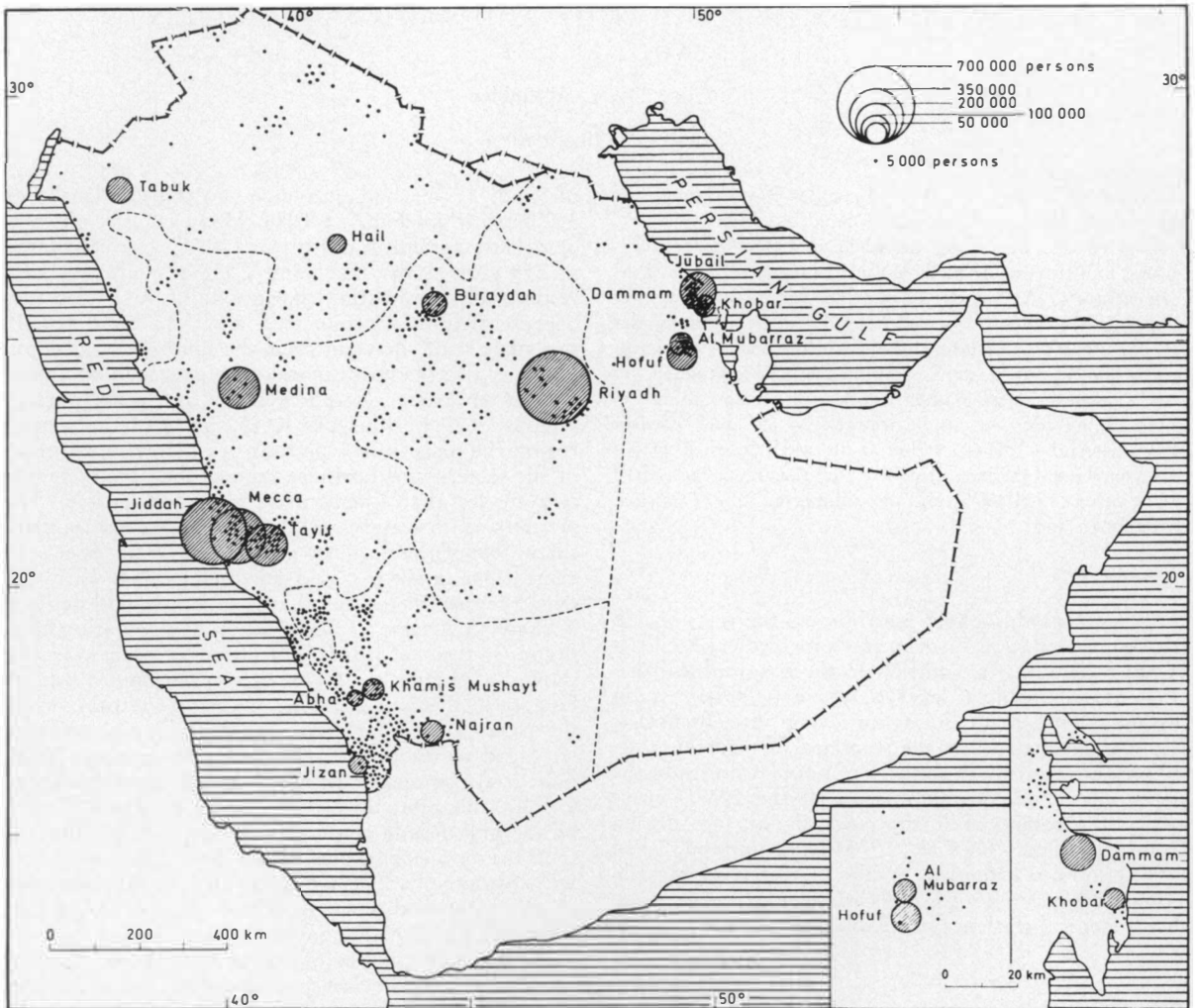


Fig. 1: Distribution of population (1974)
Kingdom of Saudi Arabia

Medical services

The Kingdom of Saudi Arabia has shown tremendous improvements both in the volume and quality of health facilities during the last decade. Considerable strides have been made to increase the number as well as the standard of hospitals, dispensaries and health centres, while the number of doctors had multiplied fourfold in one decade (1967–1977) (see Table 2). In spite of the fact that the Kingdom of Saudi Arabia has recently witnessed great improvements in the health situation, health services have not been evenly provided (Fig. 2). In other words, there are great variations in the standard of medical facilities at the regional level. However, it must be indicated that this paper is concerned only with hospital facilities for which there are detailed statistics. The measure used to show the standard of medical services is the number of general use of in-patient beds in hospitals. To put it differently, the services provided at dispensaries, health centres and

out-patient departments together with the services of doctors in private practice are not covered by this study. The main reason being that there are no detailed statistics for these services.

The western region has the largest number of hospital beds, the largest number of doctors and the smallest number of people per bed in the country indicating superior medical services. However, when the number of those taking part in the *hajj* or pilgrimage to the Holy places of Islam in Hejaz (western region) is taken into account, the actual standard of medical services will be much lower than is indicated by the present figures. This may be appreciated when it is realized that in 1979 the total number of pilgrims exceeded 2 millions not to mention those who take part in the *omra* or lesser pilgrimage which is performed the year round. The majority of those who perform the *hajj* stay in the Holy Places for a period of 2–4 weeks, thereby bringing about a considerable strain on both the regional and national health services. The

Table 1: Kingdom of Saudi Arabia: Modes of living according to the 1974 census (percentage)

Region	% Rural Nomadic	% Rural Sedentary	% Urban
WESTERN	21	22	57
CENTRAL	26	17	57
EASTERN	10	28	62
SOUTHWESTERN	25	60	15
NORTHERN	64	12	24
SAUDI ARABIA	27	28	45

Derived from: The 1974 Population Census

Table 2: Kingdom of Saudi Arabia: Volume of medical services and percent change over the period 1967-1977

	1967	1977	Percent Increase
HOSPITALS	49	64	31
DISPENSARIES	180	447	148
HEALTH CENTRES	271	301	11
HOSPITAL BEDS	6,299	10,172	61
DOCTORS	663	2,873	333

Derived from: Kingdom of Saudi Arabia, Ministry of Information: Health for All: Facts and Figures (Arabic), Riyadh (1974); Unpublished Data, Ministry of Health, (1977)

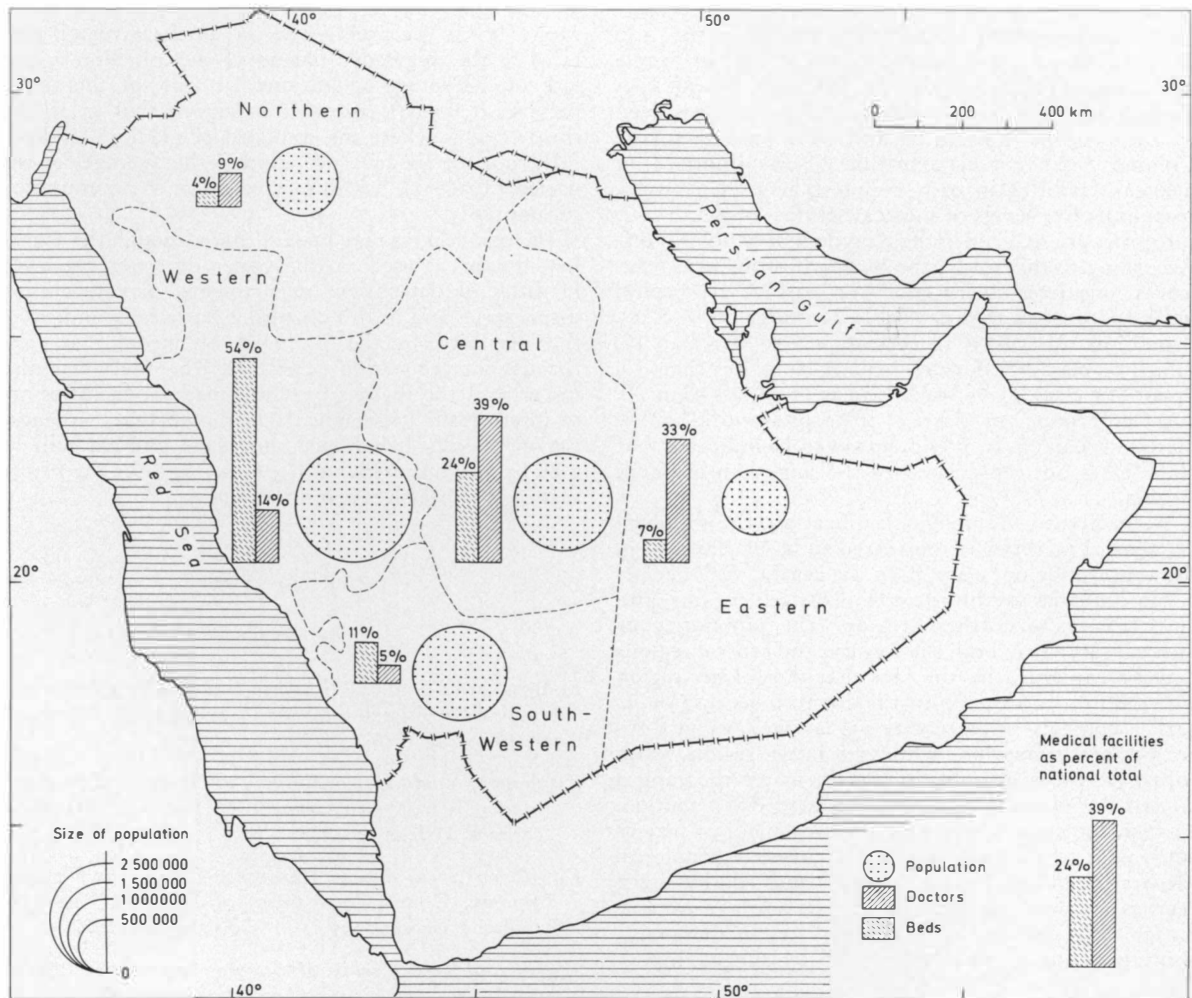


Fig. 2: Population and medical facilities by region (1977)
Kingdom of Saudi Arabia

Table 3: Kingdom of Saudi Arabia: Medical Facilities (1977)

Region	(1) Number of Hospitals	(2) Number of Hospital Beds	(3) Number of Doctors	(4) Population Served	(5) Pop- ulation per Doctor	(6) Pop- ulation per Bed	(7) Work- load Factor	(8) Class
WESTERN	21	5,563	1,130	2,478,008	2,193	445	4.45	A
CENTRAL	19	2,432	948	1,731,917	1,826	712	7.12	B
EASTERN	6	692	269	838,916	3,119	1,212	12.12	C
SOUTHWESTERN	12	1,088	400	1,545,992	3,865	1,421	14.21	C
NORTHERN	6	397	126	969,375	7,693	2,442	24.42	E
NATIONAL TOTAL	64	10,172	2,873	7,564,209	2,633	744	7.44	B National Average

Derived from: Population Census (1974); Population Estimates (1977); Ministry of Finance and National Economy, Central Department of Statistics: Statistical Year Book, Eleventh Issue (1975); Unpublished Data, Ministry of Health (1977)

central region comes second to the western in the ratio of population per bed, but first in the number of people per doctor (Table 3) (Fig. 2). Columns 6 and 7 in Table 3 show the number of people theoretically served by each bed in each region and work-load factors.*) Column 8 gives a classification of the standard of medical facilities in each region. The present study recognizes five levels of medical services of which four categories are realized in the Kingdom of Saudi Arabia. According to this study, the standard of medical services is considered "very good" or class 'A' if hospital work-load is less than 5 (Table 3 columns 6, 7 & 8), "good" or class 'B' if work-load is 5 to less than 10, "fair" or class 'C' if work-load is 10 to less than 15, "poor" or class 'D' if work-load is 15 to less than 20, and "very poor" or class 'E' if hospital work-load is 20 to less than 25. It should, however, be indicated that class 'D' is not represented in the Kingdom of Saudi Arabia.

According to the above classification, the standard of medical facilities is considered to be of class 'A' in the western region, class 'B' in the central region, class 'C' in both the southwestern and eastern regions, and class 'E' in the northern region. The superiority of medical services in both the western and central regions may be explained by the fact that the former region was the first to develop in the country because of its earlier contacts with traditional as well as modern centres of civilization, while the latter region which forms the focus of political power, where the capital city of Riyadh is located, receives a special attention. In fact, the central region gets a good medical service equivalent to that of the national average (Table 3). Medical facilities in the eastern and southwestern regions are fair, but fall below the average for the nation. The delivery of health services in the southwestern region is greatly impeded by rugged topog-

raphy, while the problem in the northern region pertains to the migratory nature of the inhabitants and lack of major agglomerations. In view of the above remarks it seems reasonable to suggest that in all the three regions where the standard of medical facilities falls short of the level 'B' which is the average for the nation (Table 3), health services have to be improved substantially.

In conclusion it may be said that although the work-load factor as used in this paper does not cater for facilities of out-patient departments, private clinics, dispensaries and health centres, it has clearly indicated the disparity in the standard of medical services throughout the nation (Table 3). The study has also underlined the regions in which medical facilities are of inferior quality, particularly the northern nomadic region. Finally it is hoped that these findings will be used by the authorities as a guiding line for the future planning of health care in the country.

References

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*) Work-load = $\frac{\text{Population served in Hundreds}}{\text{Number of general in-patient beds}}$