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 Bevölkerungsver-
teilung und den medizinischen Einrichtungen in Saudi Ar-
bien erörtert. Außer der geographischen Verteilung der
medizinischen Dienste werden die Arbeitsbelastungen der
Krankenhäuser untersucht, um auf die regionalen Ungleich-
heiten im Standard der medizinischen Einrichtungen im
Lande aufmerksam zu machen. Im Bereich der Bevölkerungs-
untersuchung fußt die Studie weitgehend auf dem „Census
of Saudi Arabia“ 1974, während die medizinischen Daten
den vom Gesundheitsministerium zur Verfügung gestellten
publizierten (1974/1975) und unpublizierten (1977) Quellen
tonnommen 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 dis-
tribution of medical services, the article will study
hospital work-loads so as to bring into focus the
regional inequalities in the standard of medical facil-
ities 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from published (1974 & 1975) and unpublished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 popula-
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 agglomera-
tions of 50,000 inhabitants and over were shown by
proportional circles (Fig. 1). The population map of
Saudi Arabia reveals an uneveness 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 popula-
tion 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, partic-
ularly to the north and south, are either very slightly
populated or uninhabited because of rugged topog-
raphy and severe arid conditions.
With a total area of 2.25 million Km², the Kingdom
of Saudi Arabia had an average population density of
3.1 persons per Km² in 1974. However, the physi-
ological and agricultural densities (1974) were calculated
at 234 persons per Km² and 1,558 persons per Km²
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 Km², while in the central
region the density is 4 persons per Km², and in most of
the eastern and northern regions the density ranges
between less than 1 person and 3 persons per Km². The
western, southwestern and central regions sustain more
than 75% of the national population, with lesser con-
centrations in the east and north (Figs. 1 & 2). How-
ever, 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 con-
spicuous of these changes is that nomadism has been on
the decline, so that the proportion of nomadic popu-
lation 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-vi the rest of the country. In other regions the pro-
portion 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 de-
veloping 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.
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 haj 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 haj 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)

<table>
<thead>
<tr>
<th>Region</th>
<th>% Rural Nomadic</th>
<th>% Rural Sedentary</th>
<th>% Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>WESTERN</td>
<td>21</td>
<td>22</td>
<td>57</td>
</tr>
<tr>
<td>CENTRAL</td>
<td>26</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>EASTERN</td>
<td>10</td>
<td>28</td>
<td>62</td>
</tr>
<tr>
<td>SOUTHWESTERN</td>
<td>25</td>
<td>60</td>
<td>15</td>
</tr>
<tr>
<td>NORTHERN</td>
<td>64</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>SAUDI ARABIA</td>
<td>27</td>
<td>28</td>
<td>45</td>
</tr>
</tbody>
</table>

Derived from: The 1974 Population Census

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

<table>
<thead>
<tr>
<th>Service</th>
<th>1967</th>
<th>1977</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSPITALS</td>
<td>49</td>
<td>64</td>
<td>31</td>
</tr>
<tr>
<td>DISPENSARIES</td>
<td>180</td>
<td>447</td>
<td>148</td>
</tr>
<tr>
<td>HEALTH CENTRES</td>
<td>271</td>
<td>301</td>
<td>11</td>
</tr>
<tr>
<td>HOSPITAL BEDS</td>
<td>6,299</td>
<td>10,172</td>
<td>61</td>
</tr>
<tr>
<td>DOCTORS</td>
<td>663</td>
<td>2,873</td>
<td>333</td>
</tr>
</tbody>
</table>


Fig. 2: Population and medical facilities by region (1977)
Kingdom of Saudi Arabia
Table 3: Kingdom of Saudi Arabia: Medical Facilities (1977)

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


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 or less (Table 3). 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 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 topography, 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 = Population served in Hundreds / Number of general in-patient beds