

# REVIEW

## Factors Affecting Causes of Death in Bahrain (1976-1980)

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### ABSTRACT

The relationship between sex, age, nationality and region to causes of death in Bahrain was investigated, using data reported in death registration files for the period 1976-1980.

The results show that males had a higher incidence of deaths due to the circulatory system diseases, injury and poisoning than females. The main causes of deaths in infancy were due to certain conditions originating in the perinatal period (53%). Injury and poisoning were the leading causes of death for the age group 1-4 years and 5-19 years (32.8% and 41.3%, respectively). However, diseases of the circulatory system were the major cause of death for the age group over 20 years.

As a nation the Bahrainis were more subjected to infective and parasitic diseases, neoplasms and diseases of the respiratory system. In general, the contribution of infective and parasitic diseases was higher in rural areas in comparison to urban areas.

Morbidity and mortality statistics are considered to be a sensitive indicator of the socio-economic and health status of the community. This often reflects the conditions of primary and secondary health care, environmental sanitation and socio-economic development in a country<sup>1</sup>.

Mortality registrations in Bahrain are still incomplete. The notification of death is under-reported. The hospitals and Public Security are the main

sources of information regarding deaths. However, data on deaths which occurred in the home, particularly for infants, is deficient. This may be due to lack of the awareness of the public toward the importance of death notification.

The major causes of mortality based on reported deaths in Bahrain are circulatory diseases, conditions originating in the perinatal period, injury and poisoning<sup>2</sup>. However, information on the socio-economic factors influencing these diseases is not available. In this study, therefore, an attempt was made to select some socio-economic variables and throw some light on their effect on causes of death.

### METHODS

The data for this study was obtained from the information available at the Statistical Section in the Directorate of Public Health.

Mortality data was collected and combined for the five-year period, from 1976 to 1980. Four variables which were reported in the death registration files were collected and analysed. These variables were sex, age, nationality and region. The sample studied comprised of 4,530 deaths, which represented 91% of the total registered deaths for the period 1976-1980.

### RESULTS

The distribution of deaths by major cause and gender is illustrated in Table 1. The incidence of death in males was higher than in females. Males were more subjected to diseases of the circulatory system, injury and poisoning than females. About 28% of the deaths among males were of diseases of the circulatory system. Whereas 14.5% of the males died from injury

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TABLE 1

The Distribution of deaths in Bahrain by major cause and gender for the period 1976-1980.

Cause of death	Sex				Total	
	Male		Female		No.	%
	No.	%	No.	%		
Infective and Parasitic Disease (001-139)	150	5.3	111	6.4	261	5.8
Neoplasms (140-239)	136	4.8	84	4.9	220	4.8
Diseases of the Circulatory System (390-459)	778	27.7	421	24.5	1199	26.5
Diseases of the Respiratory System (460-519)	247	8.8	164	9.5	411	9.1
Congenital Anomalies (740-759)	63	2.2	44	2.6	107	2.4
Certain Conditions Originating in the Perinatal Period (760-779)	280	10.0	264	15.3	544	12.0
Symptom and Ill Defined Conditions (780-799)	477	17.0	279	16.2	756	16.7
Injury and Poisoning (800-999)	406	14.5	144	8.4	550	12.1
Other causes	273	9.7	209	12.2	482	10.6
<b>Total</b>	<b>2810</b>	<b>100.0</b>	<b>1720</b>	<b>100.0</b>	<b>4530</b>	<b>100.0</b>

and poisoning compared to 8.4% of the females. In contrast, certain conditions originating in the perinatal period were higher among females (15.3%) than males (10%). The percentages of deaths from all other causes were virtually the same for males and females.

Table 2 presents the distribution of deaths by major cause and age. The contribution of diseases of the circulatory system started with 3.2% in less than one year, increased gradually to 43.8% in the age group 50-69 years, and decreased slightly to 33.5% over 69 years of age. The contributions of infective and parasitic diseases were relatively larger in infancy and childhood, decreasing gradually with greater age. Certain conditions originating in the perinatal period contributed as the highest percentage (53.0%) in the less than one year age group, while decreasing sharply thereafter. Injury and poisoning were the major causes of death in the age group 1-4 years (32.8%) and 5-19 years (41.3%).

As is shown in Table 3, deaths due to infective and parasitic diseases were higher among Bahrainis (6.4%) than non-Bahrainis (3.0%). This may be due to the fact that most non-Bahrainis were over 20 years of age, whereas infective and parasitic diseases were more common among pre-school children. Diseases of the circulatory system contributed to 25.2% and 32.1% of deaths among Bahrainis and non-Bahrainis respectively. Deaths due to injury and poisoning were higher among non-Bahrainis (20.5%) than among Bahrainis (10.3%).

The distribution of deaths by major cause and region is presented in Table 4. Main towns like Manama, Isa-Town, Riffa, Muharraq and Hidd had a higher mortality from the circulatory system diseases, while Sitra and Central Area had the lowest mortality. In general the contribution of infective and parasitic diseases was higher in rural areas such as Sitra (9.9%), Northern Area (9.0%) and Central Area (8.7%) compared with urban areas such as Manama (4.0%), Riffa (3.9%) and Isa-Town (4.4%).

**TABLE 2**  
**The percent distribution of deaths in Bahrain by cause and age for the period 1976-1980.**

Cause of death	Age (years)						Total %
	<1 %	1-4 %	5-19 %	20-49 %	50-69 %	70- %	
Infective and Parasitic Diseases	12.8	12.0	6.9	4.3	2.4	2.8	5.8
Neoplasms	—	1.0	2.7	5.1	8.2	6.5	4.8
Diseases of the Circulatory System	3.2	5.3	8.8	29.6	43.8	33.5	26.5
Diseases of the Respiratory System	6.3	11.5	5.3	4.5	10.3	15.8	9.1
Congenital Anomalies	7.2	3.6	2.7	1.2	0.5	0.7	2.4
Certain Conditions Originating in the Perinatal Period	53.0	4.7	1.1	0.4	0.4	0.7	12.0
Symptom and Ill Defined Conditions	6.1	15.6	18.0	18.6	18.6	23.5	16.7
Injury and Poisoning	1.6	32.8	41.3	26.2	6.1	4.4	12.1
Other causes	9.8	13.5	13.2	10.1	9.7	12.1	10.6
<b>Total</b>	% <b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
	<b>No. (977)</b>	<b>(192)</b>	<b>(261)</b>	<b>(936)</b>	<b>(1298)</b>	<b>(866)</b>	<b>(4530)</b>

**TABLE 3**  
**The distribution of deaths in Bahrain by cause and nationality for the period 1976-1980.**

Cause of death	Nationality				Total	
	Bahraini No.	%	Non-Bahraini No.	%	No.	%
Infective and Parasitic Diseases	237	6.4	24	3.0	261	5.8
Neoplasms	197	5.3	23	2.9	220	4.8
Diseases of the Circulatory System	941	25.2	258	32.1	1199	26.5
Diseases of the Respiratory System	376	10.1	35	4.4	411	9.1
Congenital Anomalies	87	2.3	20	2.5	107	2.4
Certain Conditions Originating in the Perinatal Period	438	11.8	106	13.2	544	12.0
Symptom and Ill Defined Conditions	654	17.5	102	12.7	756	16.7
Injury and Poisoning	385	10.3	165	20.5	550	12.1
Other causes	412	11.1	70	8.7	482	10.6
<b>Total</b>	<b>3727</b>	<b>100.0</b>	<b>803</b>	<b>100.0</b>	<b>4530</b>	<b>100.0</b>

TABLE 4

The distribution of deaths in Bahrain by cause and region for the period 1976-1980.

Cause of death	Region										
	Hidd %	Muharraq %	Manama %	Jidhafs %	Northern Area %	Western Area %	Isa Town %	Central Area %	Riffa %	Sitra %	Total %
Infective and Parasitic Diseases	5.3	6.2	4.0	9.7	9.0	7.9	4.4	8.7	3.9	9.9	5.8
Neoplasms	5.3	5.6	4.1	6.2	5.3	2.1	5.8	6.2	5.7	5.7	4.8
Diseases of the Circulatory System	26.7	26.8	29.6	21.5	22.8	20.7	27.6	17.4	27.6	17.4	26.5
Diseases of the Respiratory System	12.0	10.1	8.7	8.7	8.8	11.5	8.9	10.6	7.0	8.0	9.1
Congenital Anomalies	—	2.2	1.5	4.6	4.3	0.7	1.8	8.0	1.8	3.8	2.4
Certain Conditions Originating in the Perinatal Period	10.7	10.8	10.0	11.8	16.0	15.7	12.9	13.7	14.5	19.7	12.0
Symptom and Ill Defined Conditions	21.4	18.5	17.6	12.8	13.2	17.2	19.6	12.4	14.5	12.5	16.7
Injury and Poisoning	8.0	9.6	13.3	11.3	12.7	12.1	8.4	12.4	15.8	12.1	12.1
Other causes	10.6	10.2	11.2	13.4	7.9	12.1	10.6	10.6	9.2	10.9	10.6
Total	% 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	No. (75)	(852)	(1990)	(195)	(400)	(140)	(225)	(161)	(228)	(264)	(4530)



## DISCUSSION

The results of this study show that diseases of the circulatory system were the leading causes of death in Bahrain. This may be attributed to the increase in living standards, changes in food habits, hypertension, obesity and possibly the decrease in physical exercise.

Generally women live longer than men. This could be explained by the fact that women are biologically more fit than men and that men behave in ways more damaging to health<sup>3</sup>. Sex differential in mortality was apparent. The higher incidence of deaths among males was mainly due to diseases of the circulatory system as well as injury and poisoning. These causes of death may be connected to socio-cultural factors which are more accepted in males such as drinking alcohol, smoking cigarettes and working in hazardous jobs.

Once the age of one year is attained, the rest of childhood is a period of injury and poisoning. As is shown in Table 2, injury and poisoning were the leading causes of death among the age group 1-19 years. Musaiger and Aldallal<sup>4</sup> found that about 13% of the total deaths in Bahrain, resulting from injury and poisoning, were in the age group 1 to 19 years. Deaths due to such causes among the 1-19 years age group increased from 30% in 1976 to 57.5% in 1980. The same trend was found in the 20-49 years age group, the percentage having almost doubled, 17.1% in 1976 compared to 31.4% in 1980.

For children under nineteen years most injuries and poisoning occurred in the home. A study<sup>5</sup> on injuries among children of less than nineteen years, who attended the Accidents and Emergency Department at Salmaniya Medical Centre over a six month period showed that 47.9% of the injuries were due to falls most commonly those occurring in the home, while 35.6% were due to road accidents, especially from motor vehicles. Poisoning represented 2.4% of injuries, mainly chemical poisoning.

Although the home is the most common place for injuries in Bahrain, road accidents also contributed a good proportion of injuries and deaths. Statistics of the Traffic Department for the year 1981 reported that more than 18,000 accidents resulted in 2,036 injuries and 71 deaths<sup>6</sup>.

Usually the aged are subject to every condition known and in most cases they have a higher risk of being affected than the general population<sup>7</sup>. Diseases of the circulatory and respiratory systems, as well as neoplasms accounted for more than half of the causes of death in the over fifty age group. About

48% of the total deaths for the period 1976-1980 were among this age group (Table 2). This percentage is relatively lower than that (61%) reported by the Salmaniya Medical Centre<sup>2</sup>. This is because the Salmaniya figure represents only the hospitalised deaths, not the deaths that occurred in the home and in other places.

The region differential in mortality, which due to a higher incidence of infective and parasitic diseases, leads to the conclusion that some areas in Bahrain (particularly the rural ones) are characterised by poor water disposal, unhygienic housing and low health awareness, since the prevalence of such diseases are more common in areas with these conditions.

## CONCLUSION

**Due to the fact that the death registrations are incomplete, the mortality statistics reported here should not be considered definitive but may be used as a useful guide to examine the trend in morbidity and mortality in Bahrain. Generally, many causes of death could be prevented by the improvement of health care, particularly for mothers and children, better health education, improvement in nutritional status, family planning and adequate perinatal care.**

**Improvement of death registrations is essential in order to have more complete and reliable data. Further studies on the causes of morbidity and mortality are highly recommended. We hope our efforts will stimulate other investigators.**

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