Selected Correlates of Morbidity in Pakistan

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INTRODUCTION

The study of morbidity from the point of view of demographic analysis refers to the incidence and prevalence of sickness in the population during a certain reference period. Morbidity being the state of condition from which people may return to normal health or, subject to the seriousness of illness, may in some cases die. Though from the point of view of medical discipline any deviation from normal health i.e. a state of complete physical, mental and social well-being, is of direct concern for research. The morbidity statistics for which data have become available for a national level statistical or demographic analysis, refers to inability to perform the usual daily routine, inability to take normal food and requiring bed rest for a specific period of time.

BACKGROUND

According to the 1981 census, the population of Pakistan was 84.25 million, with 44.23 million males and 40.02 million females. Among the four provinces of Pakistan, Punjab had 58.6 percent (Table 1) of the total population, followed by Sindh with 23.5 percent, N.W.F.P. with 12.5 percent, and Balochistan with 5.4 percent. A large proportion of the population is young, 44.5 percent under 15 years of age, (Table 2) statistics which are reflective of a high birth rate and is also at least particularly responsible for keeping the proportion of population in the age bracket of 60 and over to the 7 percent. The literacy ratio, one of the lowest among the developing nations of the Asian region, stands at 26.2 percent, the figure for males being 35 percent and for females 16 percent. There is, as expected, a higher level of literacy in urban as opposed to rural areas. The literacy figures for males and females in urban areas are 55 percent and 35 percent respectively, while in the rural areas only 26 percent of males and 7 percent of females are literate. Table 3 shows the figures for literacy ratio for persons 10 + years by sex, urban/rural residence of Provinces of Pakistan.

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Table 1

Percentage Distribution of Population by Urban-Rural
Residence–Provinces–Census, National Health
Survey And Pakistan Demographic Survey

Census/Survey	Punjab	Sindh	NWFP	Balochistan
1981 Census				
All Areas	58.6	23.5	12.5	5.4
Urban	55.4	34.8	6.9	2.9
Rural	59.9	18.9	14.8	6.4
National Health				
Survey 1982-83				
All Areas	64.2	21.0	10.8	4.1
Urban	56.2	34.9	6.2	2.7
Rural	67.3	15.6	12.6	4.6
Pakistan Demographic				
Survey 1988				
All Areas	60.2	23.4	12.9	3.5
Urban	55.6	36.1	6.6	1.6
Rural	62.3	17.4	15.8	4.4

Table 2

Percentage Distribution by Age and Sex
Census, NHS and DHS, Pakistan

Age Group	Census 1981		NHS 1982-83		DHS 1988	
	Male	Female	Male	Female	Male	Female
0–4	14.3	14.6	16.1	16.5	15.8	16.8
5–9	15.8	17.0	17.0	16.2	16.5	16.6
10–14	13.7	13.3	13.4	12.6	12.6	12.7
15–24	17.4	17.5	17.8	17.0	17.0	17.8
25–34	12.3	10.4	11.5	12.3	12.4	12.6
35–44	9.4	9.3	8.5	10.2	9.9	9.0
45–59	9.5	10.3	11.1	9.0	9.8	8.9
60 +	7.6	7.6	6.8	6.1	5.9	5.6
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 3

Literacy Ratios for Persons of 10+ Years By Sex, Urban/Rural Residence – Pakistan and Province – NHS

Locality	Both Sexes	Male	Female
Pakistan			
All Areas	31.8	44.9	17.6
Urban	52.8	64.5	39.9
Rural	23.4	36.9	8.7
Punjab			
All Areas	31.5	44.2	18.1
Urban	52.3	63.1	40.4
Rural	24.6	37.7	10.8
Sindh			
All Areas	37.4	50.0	22.7
Urban	55.9	67.8	42.3
Rural	20.5	34.1	4.3
N.W.F.P.			
All Areas	26.7	43.5	8.7
Urban	44.5	59.3	28.7
Rural	23.1	40.4	4.7
Balochistan			
All Areas	20.5	32.6	6.5
Urban	43.8	60.6	23.6
Rural	14.9	25.7	2.6

Excludes FATA from N.W.F.P.

In July 1990, the population of Pakistan was estimated at 112 million with a high birth rate of 42.3, comparatively low mortality rate of 11.1, and an infant mortality rate of 80 per 1000 live births. Life expectancy stood at 61 years.

The number of hospitals in the country as of 1st January 1989 was 717, and the population covered per hospital was 156,206. However, only 18 percent (130) of the hospitals were in the rural areas which contain the bulk of Pakistan's population. The number of total primary health care facilities in the country was 8,503, the urban areas having 2,247 such facilities, and the rural areas having 6,556. The population covered by each primary facility is 12,722 persons.

Morbidity has not yet received the same amount of attention for research as mortality. In most developing countries, morbidity statistics are either not available or inadequate. Hospitalisation records often refer to Government hospitals only, and even for them causes of morbidity are recorded only for patients who died or were attended to during terminal illness by a physician. Urban people are more likely to seek hospital treatment due to relatively easier access to them, or because more people have the resources for hospitalisation.

A child whose life is saved is returned to the environment in which poverty, lack of adequate housing, sub-standard sanitation facilities, and absence of proper drinking water, may collectively or individually has chances of catching the infection again. Studies in Pakistan show higher infant mortality and crude death rates in the rural areas due to the above-mentioned problems. Other reasons for the afore-mentioned risks are congenital anomalies, birth injuries, and pre-natal causes. Children under five are extremely susceptible to catching various diseases and as such need proper health and medical services. Diarrhoea is the major cause of illness among young children. The WHO estimates that there are three-quarters of a billion cases of diarrhoea among children of developing nations each year, resulting in nearly five million fatalities [Synder and Merson (1982)].

CORRELATES OF MORBIDITY

Morbidity depends on a number of factors related to the surrounding environment, availability of basic facilities, the demographic and socio-economic characteristics of the people, and access to health, medical, and social facilities. Isolated and fragmented information can be obtained from hospitalisation records, but it is unrepresentative of the conditions of people.

To compensate for the lack of data, a National Health Survey was conducted in 1982-83. The survey provided information at National and Provincial levels and was classified on urban and rural basis. The survey provided information on all the correlates of morbidity, and was based on the prevalence of morbidity for a period of one month uptil the day of survey. The curative measures taken by sick persons and expenditures on hospitalisation and treatment were also recorded.

Literacy, especially that of mothers plays a vital role in controlling morbidity. There is a vast difference in the levels of morbidity between the urban and rural areas as shown in Table 4. Majority of the morbidity cases are reported among children upto four years old (Table 5). Morbidity further rises among babies under one, and is highest in the first six months. Male children have a higher risk of morbidity then female children, a pattern which occurs in most countries. This gender difference in morbidity rates reverses itself for people with ages between

Table 4

Morbidity Rates for Pakistan and Provinces, by Sex and Urban/Rural Residence – NHS

Locality	All Areas	Urban	Rural
Pakistan			
Both Sexes	171.2	143.1	182.3
Male	171.9	138.2	185.2
Female	170.5	148.4	179.1
Punjab			
Both Sexes	177.3	144.5	188.0
Male	180.5	137.9	194.6
Female	173.8	151.6	180.9
Sindh			
Both Sexes	150.0	136.1	162.1
Male	147.5	134.9	158.4
Female	152.7	137.5	166.3
N.W.F.P.			
Both Sexes	204.4	195.5	206.1
Male	199.6	186.4	202.0
Female	209.6	205.2	210.4
Balochistan			
Both Sexes	98.7	85.0	101.9
Male	91.5	78.3	94.6
Female	106.5	92.7	109.6

Table 5

Age-specific Morbidity Rate by Sex

Age Group	Age-specific Morbidity Rates (Per 1000 Persons)		
	Both Sexes	Male	Female
All Ages	171.2	171.9	170.5
0–4 Years	230.5	258.8	208.3
5–9 Years	144.8	153.9	134.7
10–14 Years	104.2	112.3	95.0
15–19 Years	105.0	102.8	107.6
20–4 Years	112.0	102.0	122.2
25–29 Years	135.4	120.5	149.5
30–34 Years	154.5	141.9	165.4
35–39 Years	166.9	·138.3	196.3
40–44 Years	190.5	157.3	223.8
45–49 Years	217.8	191.1	247.3
50–54 Years	232.2	213.9	253.7
55–59 Years	245.4	250.7	239.7
60–64 Years	296.3	291.3	303.6
65 and Above	372.6	391.8	346.6

20–54 years mainly due to this being the females reproductive cycle. In this period, female fatalities are higher in developing nations due to inadequate delivery systems.

Morbidity also varies by marital status (Table 6). Married people both male and female, have higher incidence of morbidity. Widowers have the highest morbidity rates, primarily because they do not have their spouses to take care of them. The above patterns hold true for three out of four provinces of Pakistan while there might be under reporting in Balochistan.

Table 6

Morbidity Rates by Marital Status, Sex and Provinces

Marital Status	Morbidity Rates (Per 1000 Persons)									
	Pakistan		Punjab		Sindh		N.W.F.P.		Balochistan	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All Areas	**171.9**	**170.5**	**180.5**	**173.8**	**147.5**	**152.7**	**199.5**	**209.6**	**91.5**	**106.5**
Never Married	152.2	145.2	162.9	147.9	132.8	133.6	174.8	166.0	88.7	104.2
Married	189.3	183.3	200.0	189.4	158.7	157.8	233.9	234.0	92.8	90.7
Widowed	333.1	350.6	334.6	342.9	317.6	307.3	418.7	500.0	151.6	291.3
Urban Areas	**138.2**	**78.3**	**137.9**	**151.6**	**134.9**	**137.5**	**186.4**	**205.2**	**148.4**	**92.7**
Never Married	123.8	123.1	123.7	124.4	122.2	117.0	162.9	167.6	58.9	65.9
Married	156.8	170.4	158.4	180.0	148.2	150.8	218.6	227.2	100.9	96.5
Widowed	261.2	277.5	227.2	266.3	303.2	254.2	334.9	518.7	348.1	326.4
Rural Areas	**185.2**	**179.1**	**194.6**	**180.9**	**158.4**	**166.3**	**202.0**	**210.4**	**94.6**	**109.5**
Never Married	168.0	154.6	176.5	156.1	142.9	150.7	176.9	165.6	96.3	113.1
Married	201.5	187.8	212.2	192.2	166.8	162.8	237.0	235.2	91.1	89.5
Widowed	356.6	382.3	364.6	370.2	326.8	361.3	436.6	496.6	114.4	279.9

The biggest cause of morbidity in Pakistan is Malaria (41 percent) (Table 7) which includes other fevers also. This is true among both urban and rural areas, and also males and females. This is followed by the common cold and respiratory diseases with influenza also being quite common in Pakistan. Among children, the leading causes of morbidity were diarrhoea, dysentery, and other disorders of gastrointestinal system. Next in frequency were respiratory diseases followed by fever. In Balochistan, there are a high number of morbidity cases among children due to measles and polio, while in N.W.F.P. children suffer to a high degree from tetanus.

Table 7

Percentage Distribution of Sick Persons by Sex Selected
Diseases and Urban/Rural Residence

	Disease	Both Areas		Urban		Rural	
		Male	Female	Male	Female	Male	Female
Code							
01–02	Tuberculoses	2.54	2.26	2.27	2.23	2.62	2.27
05	Dysentery	2.62	1.99	2.96	1.67	2.52	2.09
06	Other Infective Diseases Commonly Arising in Intestinal Tract	3.78	3.13	3.81	2.90	3.77	3.49
07	Certain Diseases Common Among Children	3.22	2.97	3.25	3.17	3.21	2.90
09	Malaria (Includes all other Fevers)	41.08	39.55	32.72	30.64	43.53	42.42
14	Allergic Disorders	4.03	2.70	3.69	2.37	4.12	2.80
16	Diabetes Mellitus	0.80	0.53	0.84	1.07	0.79	0.35
21	Diseases of Eyes	1.10	1.21	1.43	1.00	1.00	1.28
24–26	Chronic Rheumatic Hear Disease, Arteriosclerotic and Degenerative Heart Disease and Hypertensive Disease	1.27	2.75	2.46	4.67	0.91	2.14
28	Acute Nasopharyngitis (Common Cold)	6.76	6.16	9.56	6.71	5.94	5.98
30	Influenza	4.25	3.55	4.42	4.52	4.20	3.23
31	Pneumonia	1.15	1.42	0.88	1.14	1.23	1.51
34	All other Respiratory Disease	5.51	4.71	6.68	5.22	5.16	4.55
35	Diseases of Stomach and Duodenum Except Cancer	3.59	4.84	3.75	6.86	3.55	4.19
40	Other Diseases of Digestive System	2.25	1.69	1.55	2.03	2.46	1.58
46	Arthritis and Rheumatism Except Rheumatic Fever	2.63	3.90	2.50	4.58	2.66	3.68
50	Accidents, Poisoning, and Violence (External Cause)	1.69	1.07	2.61	0.90	1.42	1.12
	All other Diseases	11.73	15.57	14.62	19.22	10.91	14.42
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Analysis of morbidity in relation to occupation of the patient (Table 8) shows that people working in the agricultural sector have the highest rate of morbidity as they work in rural areas where health and sanitary conditions are the worst, and medical facilities least available. Incidentally this is the area in which the largest proportion of Pakistanis are working. The group with the next highest level of morbidity is that of people connected with the retail trade such as small shopkeepers and salesmen. Technical and other types of skilled workers also have a high morbidity rate. Professionals have the lowest morbidity rate by occupation. They are often highly educated, live in large cities, and have access to most of the requisite health and medical facilities.

Table 8

Morbidity Rates by Major Occupation Groups, Pakistan

Major Occupation Group	Morbidity Rates (per 1000 Employed Persons)
Total	**157.8**
Professional, Technical and Related Workers	151.3
Administrative and Managerial Workers	111.9
Clerical and Related Workers	94.8
Sales Workers	162.9
Service Workers	155.5
Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters	173.1
Production and Related Workers, Transport Equipment Operators and Labourers	137.6
Workers not Classifiable by Occupation	151.6

In urban areas, 41 percent (Table 9) of sick people seek treatment at private clinics while in rural areas 21 percent do so. In rural areas, as access to doctors, as well as hospitals and clinics is not easy, around 17-18 percent people seek help with compounders (pharmacists) while only 7 percent people in urban areas utilise compounders. Similarly, in rural areas a sizeable number of people 14-15 percent get treatment from Hakims (Homeopathic doctors) while only 4 percent of urbanites go to Hakims. In Balochistan, the proportion of people being hopitalised is the highest inspite of the fact that it is the least developed province of Pakistan (Table 10). This is so because of the very low density of population which improves the doctor to patient and hospital to patient ratio.

Table 9

Percentage Distribution of Sick Persons by Source of Treatment Received, Urban/Rural Residence for Pakistan

Source of Treatment	Both Areas			Urban Areas			Rural Areas		
	Both Sexes	Male	Fe-male	Both Sexes	Male	Fe-male	Both Sexes	Male	Fe-male
1. Government Hospital/ Dispensary/Rural Health Centre/Sub-Centre	15.66	14.80	16.41	13.45	12.55	14.36	16.23	15.47	17.08
2. Private Hospital/ Dispensary	17.73	18.13	17.70	22.55	23.99	21.09	16.50	16.41	16.60
3. Private Clinic	24.92	25.14	25.97	40.66	39.81	41.52	20.88	20.88	20.95
4. Hakim	12.34	12.85	11.13	4.29	4.68	3.89	14.41	15.25	13.47
5. Homeopath	1.23	1.21	1.29	1.66	1.34	1.99	1.12	1.18	1.06
6. Compounder	15.29	14.44	15.55	7.01	6.46	7.56	17.42	16.78	18.12
7. Self Treatment	5.54	5.81	5.14	4.22	4.83	3.62	5.88	6.10	5.64
8. No Treatment	3.11	3.33	2.80	2.20	2.46	1.94	3.35	3.59	3.08
9. Other	1.31	1.44	1.11	0.75	0.83	0.67	1.45	1.63	1.26
10. More than one Source	2.86	2.85	2.88	3.21	3.05	3.38	2.76	2.76	2.74
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10

Percentage of Sick Persons Hospitalised (1st Sickness) by Sex and Urban/Rural Residence Pakistan and Provinces–NHS 1982-83

Area	All Areas			Urban			Rural		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Pakistan	3.69	3.57	3.83	3.89	3.53	4.25	3.63	3.58	3.69
Punjab	2.77	2.75	2.79	2.76	2.68	2.84	2.77	2.76	2.78
Sindh	5.97	5.46	6.52	5.25	4.20	6.37	6.50	6.38	6.62
N.W.F.P.	4.96	4.93	4.99	4.79	5.38	4.21	5.00	4.86	5.14
Balochistan	5.06	5.33	4.82	10.91	9.52	12.24	3.94	4.51	3.43

As shown in Table 11, there are a few amenities, the availability of which ensures to a great extent the provision of good health. These are *Pucca* (Concrete) housing, piped water, gas for cooking, and flush toilets. People who lack any or all of these facilities are most prone to illness. Table 12 shows that migrants of the Medical Institution were at a for flung distance from the rural areas of Pakistan.

Table 11

*Morbidity Rates by Type of Construction and Housing
Facilities by Urban/Rural Residence*

Type of Construction/ Housing Facilities	Morbidity Rates (Per 1000 Persons)		
	All Areas	Urban	Rural
A. Type of Construction			
1. Pucca	155.4	133.8	186.9
2. Others	177.7	157.8	181.4
B. Source of Main Drinking Water			
1. Piped Water	155.6	147.6	178.7
2. Well/Hand Pump	178.3	139.7	186.8
3. Others	161.4	121.2	165.3
C. Type of Cooking Fuel			
1. Gas/Biogas/Electricity	135.8	135.8	135.9
2. Cow-dung and Wood/Other	161.3	147.2	226.3
3. Kerosene Oil	176.5	147.5	182.2
D. Type of Toilet			
1. Flush	142.0	136.7	216.3
2. Without Flush	146.6	141.4	155.7
3. Closed Pit/Open Space	183.0	159.1	185.0

Table 12

*Distribution of Rural Sample Areas by Distance from Different
Categories of Medical Institutions, Pakistan*

Medical Institution	Less than one Kilometer or within the Sample Area	1–2 Kilometer	3–5 Kilometer	6–10 Kilometer	More than 10 Kilometer
Hospital	1.4	3.6	6.6•	18.9	69.5
Dispensary	14.8	8.2	19.2	26.1	31.7
Maternity and Child Health Centre	6.5	4.9	11.0	21.2	56.4
Rural Health Centre	11.6	7.8	17.7	27.1	35.9
Rural Health Sub-Centre	21.7	9.8	21.3	22.9	24.2
Private Clinic	28.2	8.7	17.3	20.8	25.1

CONCLUSIONS

Although mortality levels declined in the past 40 to 50 years in Pakistan and in other developing countries, it is more due to the effectiveness of modern medicine for reducing the termination of life by death, and not primarily due to the control of the incidence of disease. The conditions of high fertility and declining mortality have contributed to a fast growth in population under the conditions of low literacy specially among women, inadequate health facilities and limited financial resources for the majority of the population. Such conditions along with unhealthy environmental factors are favourable to the chances of becoming ill.

Fever has been identified as a major cause of sickness (41 percent) which is followed by digestive disorder (8 percent) and respiratory disorders (6 percent). Maximum sickness was registered in rural areas having the poorest sanitary conditions.

Low educational levels, poor hygienic status of the families, poor environmental sanitation and low per capita income are important correlates of morbidity. Also a low level of health status is due to overcrowded houses, poor environmental sanitation, lack of education, and unemployment in youth.

The improvement in socio-economic conditions, education and awareness among the people, provision of health and sanitary facilities, both in rural and urban areas will help to limit the incidence of morbidity, which will contribute not only to further lowering of the mortality but also improve the productivity of the available manpower. It is also suggested that health surveys on morbidity and other related factors should be a regular feature of the statistical activity in Pakistan. Also the available data need further in-depth analysis to look at various aspects of morbidity.

REFERENCE

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Comments on
"Selected Correlates of Morbidity in Pakistan"

Since the initiation of Pakistan's Family Planning Programme all efforts of research have been directed towards on examination of fertility levels and their determinants. As mortality has declined countinuously, little attention has focussed on mortality research in the country. This was due to the fact that no specialised mortality surveys had been undertaken in the country and as such all the research in this direction has been based on questions on deaths asked in demographic and fertility surveys. Similarly, as pointed out by the author there is a dearth of morbidity data from hospital records and no attempt has been made from the concerned departments to collect data on morbidity at national or regional level.

It has been only in the recent past that the Federal Bureau of Statistics, Government of Pakistan has undertaken a National Health Survey and has also asked questions on causes of death in the 1984–88 Pakistan Demographic Surveys. The author needs to be congratulated on initiating research on morbidity in Pakistan and it is expected that similar efforts will be continued in the future.

Although the author has analysed the morbidity data in detail yet the purpose of this presentation is to throw some more light on the available data. For instance, the morbidity rates are higher for females in the urban areas of the four provinces with the reverse phenomenon being observed in the rural areas. This is probably due to the fact that most of the urban women remain confined in their homes which are mostly located in congested areas and *Katchi Abadis* whereas rural women work both inside and outside the household and remain physically fit. It is worth noting that the curve of the morbidity rate is an inverted *U*-shape like the mortality curve, tending to indicate that morbidity and mortality are closely related with age. Further, another interesting aspect of the age curve of morbidity is that morbidity is higher for males in the age range 0–10 years, lower for males in the age range 15–55 years and higher for males beyond age 55. Although the morbidity rates for male children are higher yet female children still experience excessive mortality over male children. Is it because parents incur more expenses on the care of sons and if is so then Zeba Sathar's hypothesis of the neglect of female children gains recognition in the present case. Further, higher female morbidity in the reproductive ages is indicative of high maternal mortality in Pakistan. Higher male morbidity beyond age 55–59 is indicative of the fact that male mortality at advanced ages tends to remain higher as compared to female mortality.

Furthermore the data shows that morbidity rates for married males and

females are higher than that of never married males and females. In fact the reverse should be the case here. *It is suggested that morbidity rates for never married persons should be split up among children adults and aged persons.*

Another interesting feature of the results are that only about 16 percent (18 Million) of the population of Pakistan is provided health care facilities by the Ministry of Health. On the other hand, only 15 to 20 percent of the population of Pakistan is covered by the family planning programme facilities which also provide maternal and child health care. Only about 13 percent of the urban population and 16 percent of rural population has access to government health facilities. The rural population as compared to the urban population utilises private health facilities to a much lesser extent probably because these services are quite expensive and as such the rural population tend to utilise less expensive treatment of Hakims, Homeopaths and Compounders.

As the National Health Survey is based on a national probability sample and since Balochistan represents only 5 percent of the total population, care should be taken to interpret the Balochistan figures.

In the end it is worthwhile to note that the rural sample population in the survey indicates the extent of accessibility of health facilities. For instance about 88 percent of the population has to travel 5 or more kilometres to reach the hospital, 33 percent of the population has to cover 5 or more kilometres to reach a dispensary, 28 percent has to cover 5 or more kilometres to reach M.C.H. Centres. In addition, 63 percent of the population has to travel 5 or more kilometres to reach a rural health center, 47 percent to reach a rural health sub-centre and 46 percent to reach a private clinic.

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