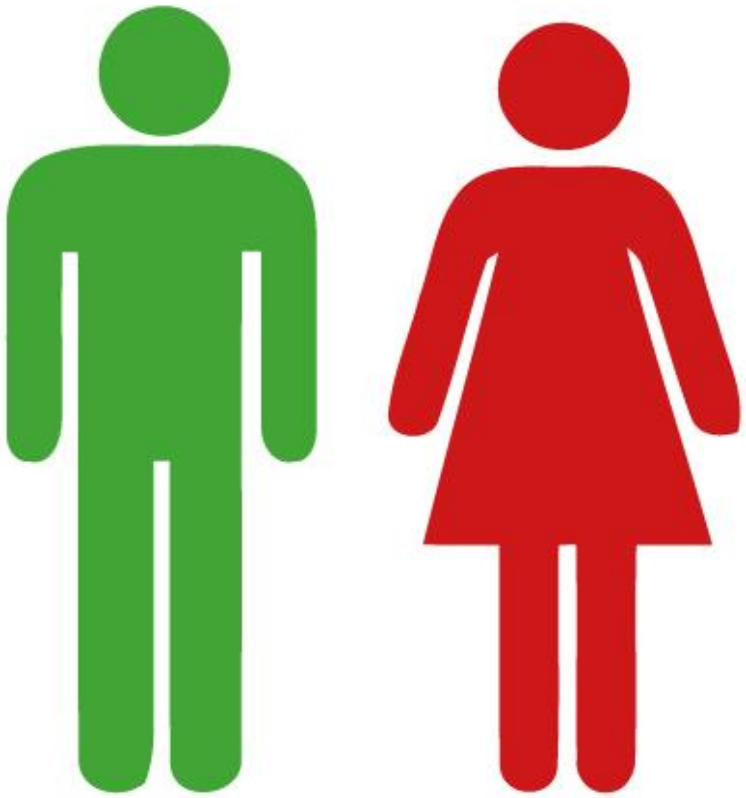
LifeTables

Gallup Pakistan Analysis of National

Institute of Population Studies



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PRESS RELEASE

Gallup Pakistan Analysis of National Institute of Population Studies

In 2019, 6.1% of deaths recorded (per 100,000) were of infants who died before they reached the age of one **– Life Tables – National Institute of Population Studies**

Islamabad, August 19th, 2024

Gallup Pakistan, as part of its Big Data Analysis initiative, is looking at Life Tables for Pakistan. This data is part of a dashboard hosted by the 'National Institute of Population Studies'.

The current edition looks at data from National Institute of Population Studies Dashboard, which can be found HERE.

What is the Big Data Analysis Series by Gallup?

Gallup Pakistan's Big Data series was started by Bilal I Gilani, Executive Director of Gallup Pakistan. Bilal explains the rationale of the series: "The usual complaint from academics and policy makers is that Pakistan does not have data availability. Our experience negates that. Pakistan has lots of data, but it is not available in a usable form and not widely accessible. At Gallup we plan to bridge this gap in terms of accessibility and use of data. The Gallup Big Data series has earlier worked with data sets such as PSLM, Labour Force Survey, and Economic Survey reports as well as National Census Reports and Election Commission Data sets. The current series is using the National Institute of Population Studies Dashboard, which provides a variety of maternal health statistics. We hope that these series are useful, and we welcome both feedback as well as possible collaborations as we create a public good in the form of useful data sets in Pakistan."

What data points this current edition covers:

This series aims to present the important learnings from the National Institute of Population Studies Dashboard, for policy makers, the public, as well as for marketers in an easy and understandable way. This edition looks at Life Table statistics for Pakistan. The series' main aim is to provide data. Implications of these data points for development sector as well as wider socio-political ramifications is something we would like to trigger in relevant circles.

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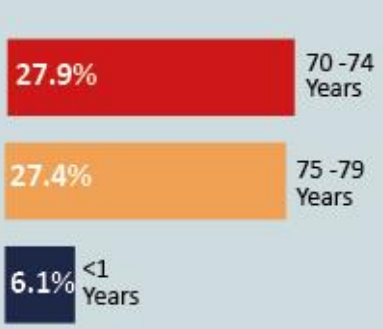
Death during age interval:

The defined age intervals that recorded the highest proportion of death were 70-74 years (27.9%), 75-79 years (27.4%) and <1 years (6.1%). This means that out of those who reached the age of 70 in a hypothetical population of 100,000, 27.9% died between the age of 70 and 74.



Infant deaths:

In 2019, 6.1% of deaths recorded were those of infants who died before they reached the age of one. This implies that out of a sample of 100,000, 6,125 could not make it past their first birthday.

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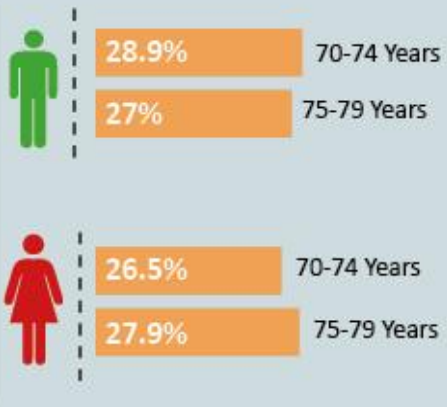
recorded were those of infants who died before they reached the age of one.

By Gender:

28.9% men and 26.5% women in the 70-74 age interval, while 27% men and 27.9% women in the 75-79 age interval, died within the interval after entering it.



Source: Gallup Pakistan Analysis of National Institute of Population Studies

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Today's topic is "Life Tables in Pakistan" from the National Institute of Population Studies Dashboard

Key Findings:

Death during age interval: The defined age intervals that recorded the highest proportion of death were 70-74 years (27.9%), 75-79 years (27.4%) and <1 years (6.1%). This means that out of those who reached the age of 70 in a hypothetical population of 100,000, 27.9% died between the age of 70 and 74.

Infant deaths: In 2019, 6.1% of deaths recorded were those of infants who died before they reached the age of one. This implies that out of a sample of 100,000, 6,125 could not make it past their first birthday.

By Gender: 28.9% men and 26.5% women in the 70-74 age interval, while 27% men and 27.9% women in the 75-79 age interval, died within the interval after entering it.

Life tables are used to simulate life time mortality experience of a population. They are one of the most powerful tools in demography. In life tables, the age specific death rates of a population are applied to a hypothetical population of 100,000 people born at the same time. For each year on the life table, death inevitably thins the hypothetical population's ranks. Before delving deeper into the life tables themselves, it is important to understand the terminology used in the tables in order to better understand the context.

COLUMN	EXPLANATION
q_x	Proportion of person alive at the beginning of the age interval, who die during the age interval.
l_x	The number surviving to the beginning of the age interval.
d_x	The number of persons in the cohort who die in the age interval (x, x+n).
L_x	Person-years of life in the age interval.
T_x	Total person-years of life contributed by the cohort after attaining age x
e_x	Average number of years of life remaining for a person alive at the beginning of age interval x.

(Table 1) Source: Pakistan Maternal Mortality Survey (PMMS), 2019

For the purpose of this report, the variables of interest would be q_x, l_x, d_x and e_x. Analyses will be conducted using Life Tables from the Pakistan Maternal Mortality Survey (PMMS) 2019.

Life Table - All Pakistan

Table 3.5 Complete life table for Pakistan

Complete life table for the total population, Pakistan MMS 2019

Age group	Proportion of persons alive at the beginning of the age interval who died during the interval (q_x)	Number living at the beginning of the age interval (l_x)	Number dying during the age interval (d_x)	Stationary population in the age interval (L_x)	Stationary population in this and all subsequent age intervals (T_x)	Average number of years of life remaining at the beginning of the age interval (e_x)
<1	0.0612	100,000	6,125	96,905	6,536,651	65.37
1-4	0.0102	93,875	959	373,580	6,439,746	68.60
5-9	0.0040	92,916	375	463,644	6,066,166	65.29
10-14	0.0033	92,542	307	461,941	5,602,522	60.54
15-19	0.0055	92,235	511	459,896	5,140,581	55.73
20-24	0.0061	91,724	564	457,207	4,680,686	51.03
25-29	0.0073	91,160	662	454,140	4,223,479	46.33
30-34	0.0089	90,497	806	450,469	3,769,339	41.65
35-39	0.0111	89,691	996	445,962	3,318,870	37.00
40-44	0.0197	88,695	1,744	439,101	2,872,909	32.39
45-49	0.0301	86,951	2,616	428,181	2,433,808	27.99
50-54	0.0498	84,335	4,202	411,080	2,005,627	23.78
55-59	0.0767	80,133	6,150	385,085	1,594,547	19.90
60-64	0.1276	73,983	9,439	345,780	1,209,463	16.35
65-69	0.1572	64,544	10,147	296,629	863,682	13.38
70-74	0.2789	54,397	15,173	231,988	567,053	10.42
75-79	0.2740	39,224	10,746	167,822	335,065	8.54
80+	1.0000	28,477	28,477	167,243	167,243	5.87

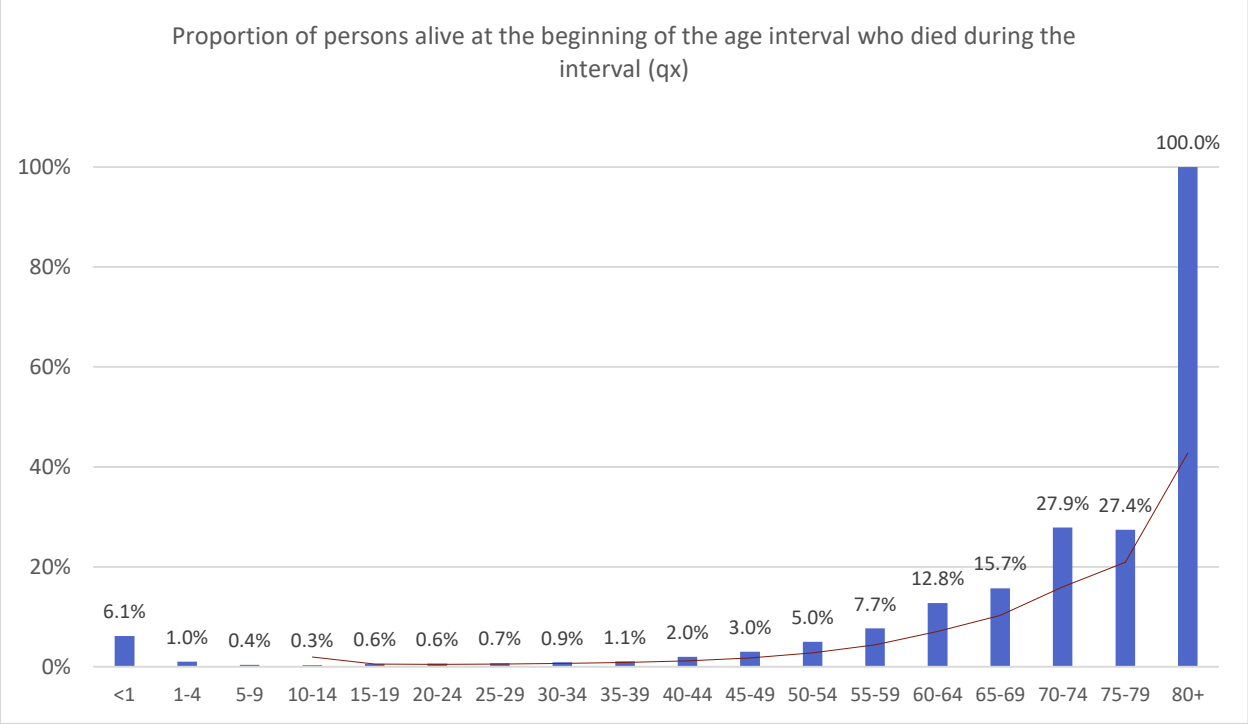
Note: Excludes Azad Jammu and Kashmir and Gilgit Baltistan.

(Table 2) Source: Pakistan Maternal Mortality Survey (PMMS), 2019

Death during age interval (qx) – All Pakistan

The defined age intervals that record the highest proportion of death are 70-74 years (27.9%), 75-79 years (27.4%) and <1 years (6.1%). This means that out of those who reached the age of 70 in a hypothetical population of 100,000, 27.9% died between the age of 70 and 74.

While a higher rate for older populations is intuitive, what is concerning is the 6.1% of infants, who died before they reached the age of one. This implies that out of a sample of 100,000, 6,125 could not make it past the age of one. High infant mortality is a problem common in developing countries like Pakistan, where healthcare facilities and awareness affect the youngest – and often the oldest – segments of the population the most.

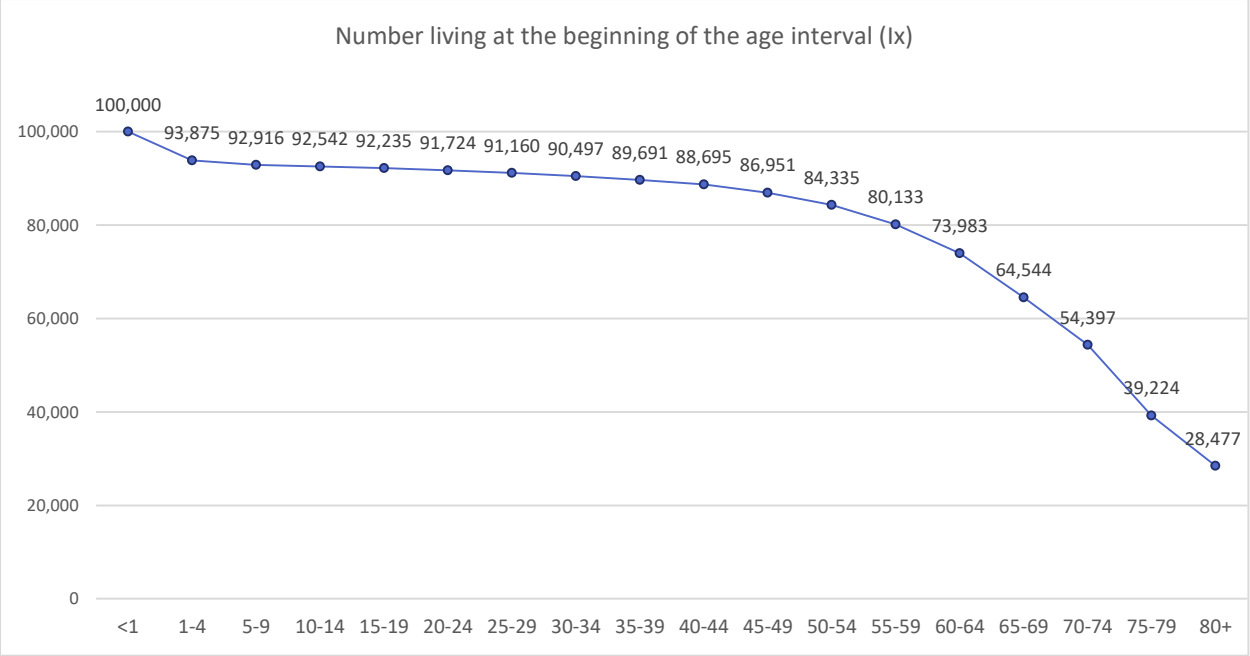


(Fig 1) Source: Pakistan Maternal Mortality Survey (PMMS), 2019[1] – Analysis by Gallup Pakistan

Number living at the beginning of the age interval (Ix) – All Pakistan

Figure 3 illustrates the same information by looking at the number of people alive at the beginning of each age interval. This shows that, in 2019, only 28,477 out of 100,000 individuals lived past the age of 80. As age increases, the drop in the size of the population becomes larger. However, an outlier once again is the bump from 100,000 to 93,875 that happens within the <1-year-old population. This is indicative of the gap in infant healthcare in Pakistan and shows how it affected thousands of lives every year. Glaring statistics like these highlight the need for a systemic shift in healthcare practices and policies that aim to lower infant and toddler mortality by offering affordable and easily accessible solutions throughout the country.

[1] https://www.rhsupplies.org/uploads/tx_rhscpublications/Pakistan._Maternal_Mortality_Survey_2019.pdf



(Fig 2) Source: Pakistan Maternal Mortality Survey (PMMS), 2019 – Analysis by Gallup Pakistan

Life Table – By Gender

Next, exploring the life tables by gender reveals interesting insight that could be investigated further in future studies and surveys.

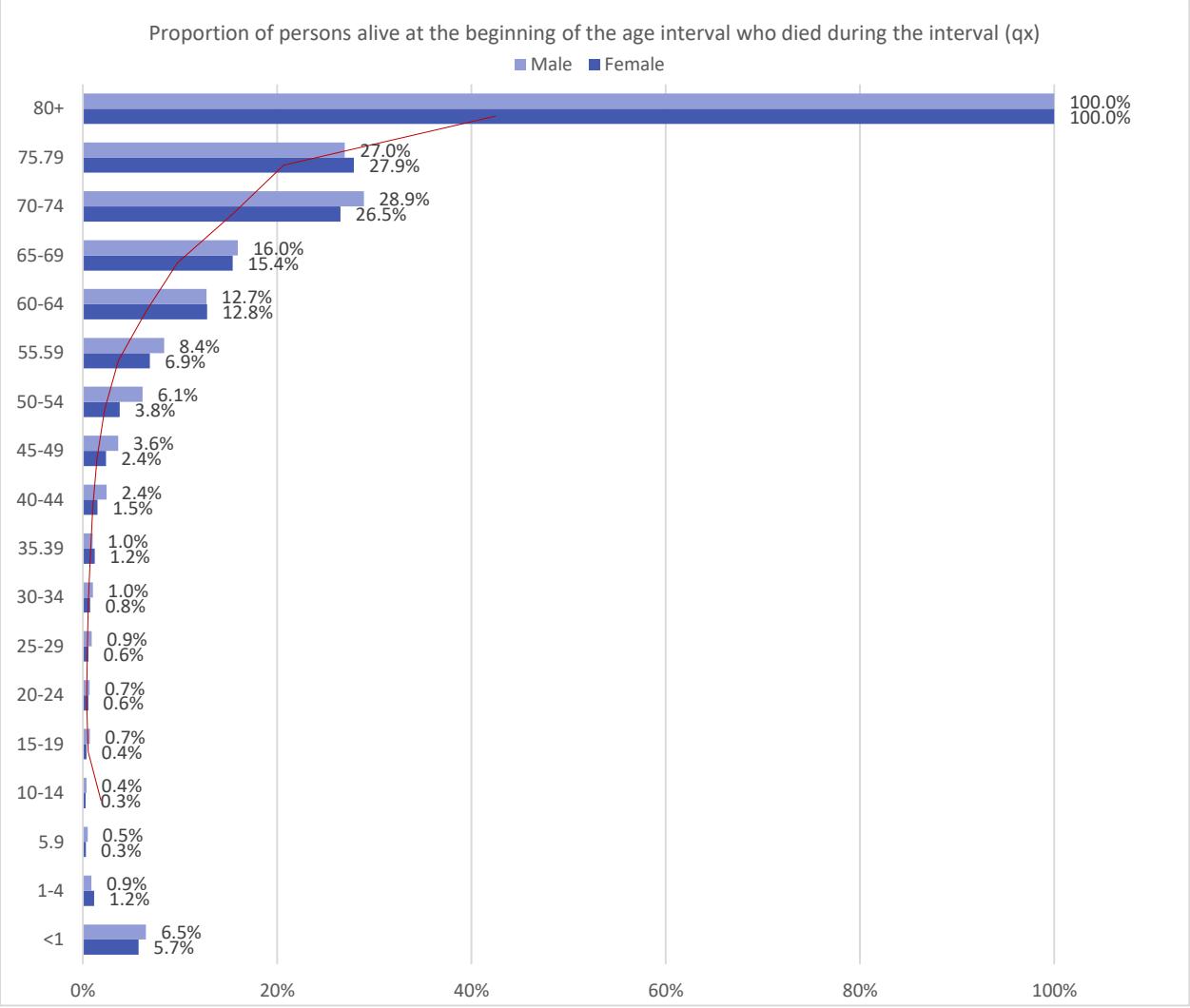
Age group	Proportion of persons alive at the beginning of the age interval who died during the interval (q_x)	Number living at the beginning of the age interval (l_x)	Number dying during the age interval (d_x)	Stationary population in the age interval (L_x)	Stationary population in this and all subsequent age intervals (T_x)	Average number of years of life remaining at the beginning of the age interval (e_x)
			FEMALE			
<1	0.0573	100,000	5,730	97,107	6,647,938	66.48
1-4	0.0117	94,270	1,101	374,874	6,550,831	69.49
5-9	0.0032	93,169	294	465,110	6,175,957	66.29
10-14	0.0027	92,875	251	463,747	5,710,847	61.49
15-19	0.0038	92,624	354	462,232	5,247,100	56.65
20-24	0.0055	92,269	505	460,084	4,784,868	51.86
25-29	0.0056	91,765	511	457,543	4,324,784	47.13
30-34	0.0075	91,253	685	454,551	3,867,240	42.38
35-39	0.0122	90,568	1,103	450,076	3,412,689	37.68
40-44	0.0150	89,465	1,346	443,951	2,962,613	33.11
45-49	0.0239	88,119	2,103	435,317	2,518,662	28.58
50-54	0.0380	86,016	3,267	421,862	2,083,345	24.22
55-59	0.0691	82,750	5,715	399,291	1,661,483	20.08
60-64	0.1280	77,035	9,861	359,959	1,262,192	16.38
65-69	0.1543	67,174	10,365	309,231	902,233	13.43
70-74	0.2653	56,808	15,072	244,428	593,002	10.44
75-79	0.2791	41,736	11,647	177,980	348,574	8.35
80+	1.0000	30,090	30,090	170,595	170,595	5.67

(Table 3) Source: Pakistan Maternal Mortality Survey (PMMS), 2019

			MALE			
<1	0.0650	100,000	6,497	96,715	6,431,015	64.31
1-4	0.0088	93,503	827	372,356	6,334,300	67.74
5-9	0.0049	92,676	450	462,254	5,961,944	64.33
10-14	0.0039	92,226	359	460,232	5,499,690	59.63
15-19	0.0073	91,867	670	457,658	5,039,458	54.86
20-24	0.0069	91,197	630	454,408	4,581,800	50.24
25-29	0.0092	90,567	834	450,747	4,127,392	45.57
30-34	0.0104	89,733	932	446,333	3,676,645	40.97
35-39	0.0100	88,802	885	441,792	3,230,312	36.38
40-44	0.0243	87,917	2,132	434,232	2,788,519	31.72
45-49	0.0364	85,785	3,119	421,079	2,354,287	27.44
50-54	0.0614	82,666	5,073	400,514	1,933,209	23.39
55-59	0.0838	77,593	6,503	371,471	1,532,695	19.75
60-64	0.1272	71,090	9,044	332,327	1,161,223	16.33
65-69	0.1596	62,046	9,900	284,763	828,896	13.36
70-74	0.2892	52,146	15,079	220,893	544,133	10.43
75-79	0.2697	37,067	9,997	159,036	323,240	8.72
80+	1.0000	27,070	27,070	164,204	164,204	6.07

Note: Excludes Azad Jammu and Kashmir and Gilgit Baltistan.

(Table 4) Source: Pakistan Maternal Mortality Survey (PMMS), 2019

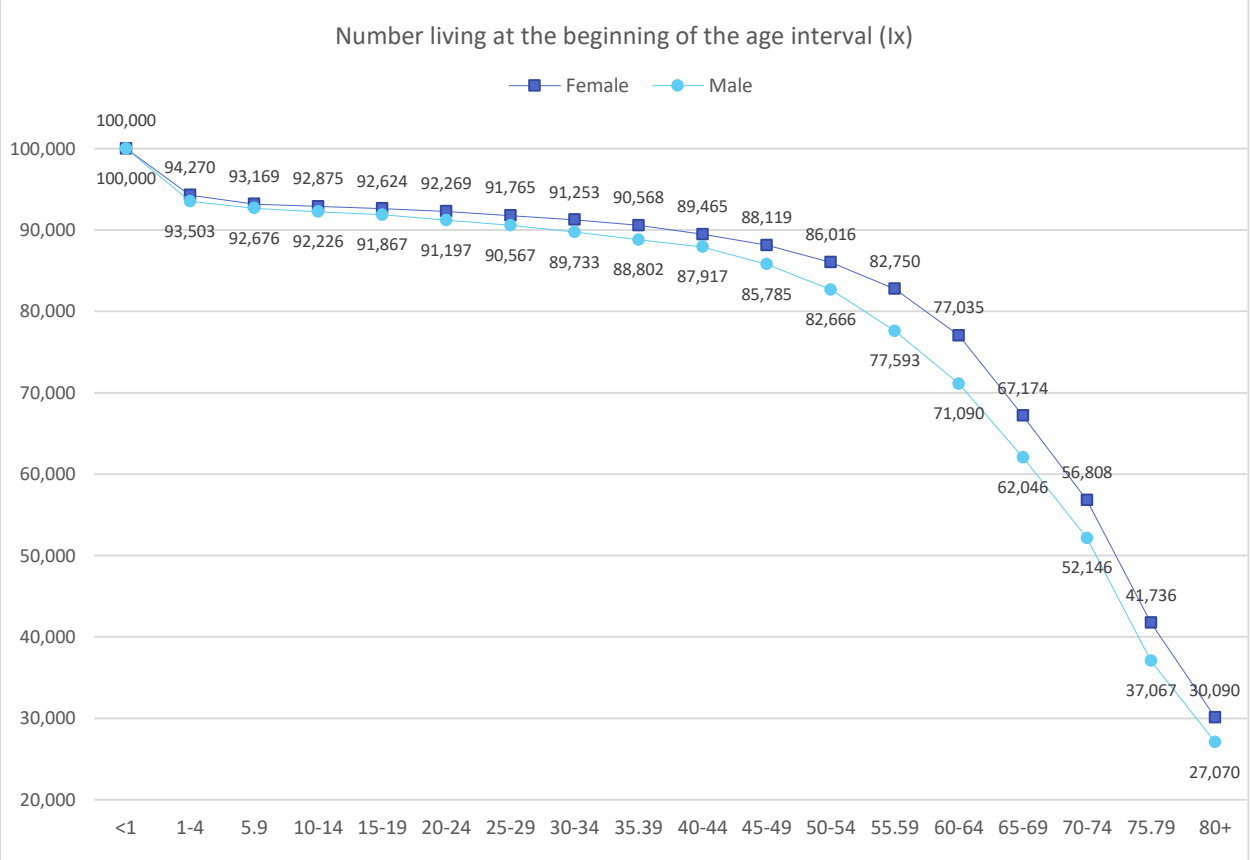


(Fig 3) Source: Pakistan Maternal Mortality Survey (PMMS), 2019 – Analysis by Gallup Pakistan

A gendered breakdown of proportion of persons alive at the beginning of the age interval who died during it largely reflects the findings of the national figures. That is, a higher percentage of the population in the older age groups died during those intervals. 28.9% men and 26.5%

women in the 70-74 age bracket, while 27% men and 27.9% women in the 75-79 age bracket died within the interval after entering it.

Within the <1 age bracket, more male children died before turning 1 (6.5%) than female children (5.7%). Among social and cultural factors in play, this differential and a higher proportion of male deaths could also be associated with the lower overall life expectancy for men in the country, compared to women. This is also illustrated in Figure 5, where on average more females were alive at the start of a given age internal compared to me. It is to be noted that for the gendered analysis, the model considers hypothetical populations of 100,000 men and 100,000 women respectively.



(Fig 4) Source: Pakistan Maternal Mortality Survey (PMMS), 2019 – Analysis by Gallup Pakistan

Wish to Contribute to Gallup Big Data Analysis?

Gallup Pakistan is looking for collaboration with researchers to expand both the Big Data Analysis project as well as this study of Health in Pakistan. If you have any ideas, please write to Bilal I Gilani, Project Director, Big Data Analysis at Gallup Pakistan.

Wish to know more about the National Institute of Population Studies Dashboard?

NIPS is a premier research organization established by the Government of Pakistan since 1986 and currently, it is working under umbrella of the Ministry of National Health Services, Regulations & Coordination (NHSR&C). The NIPS has been mandated to act as a technical arm of the Government for undertaking high quality research and to produce evidence-based data, information for utilization by the Public sector and others agencies for policy formulation, strategic planning and making reference in the spheres of demography, population & development and health.

You can find more information on Life Tables, and complete tables, on https://nips.org.pk/

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