MONTHLY REPORT ON WEEKLY NUMBERS OF DEATHS IN SOUTH AFRICA

DECEMBER 2025

(TO EPIWEEK 53)

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South African Medical Research Council
13 February 2026

UCT Centre for Actuarial Research

Glossary:

Actual number of deaths: The actual number of deaths in South Africa have been estimated from the numbers recorded on the National Population Register. We use weighting factors set to produce results consistent with those of the annual Rapid Mortality Surveillance Report to account for deaths of persons who are not on the National Population Register as well as those that have not been recorded at all. The adjustments to account for incompleteness of recording of deaths on the National Population Register were re-estimated taking into account the 2017 cause-of-death data released by Stats SA in 2021.

Epi-week: We report by an 'Epi-week' consistent with CDC and many NICD reports which run from Sunday to Saturday, ensuring continuity of weeks from one year to the next. Each week is aligned with the 'Epi-year' that has 4 or more days in that week. For example, Week 53 of 2020 is from 27 December 2020 to 2 January 2021, Week 1 of 2021 is 3 January – 9 January 2021, Week 1 of 2022 is 2 January – 8 January 2022, Week 1 of 2023 is 1 January – 7 January 2023, Week 1 of 2024 is 31 January 2023 – 6 January 2024 and Week 1 of 2025 is 29 December 2024 – 4 January 2025.

Predicted number of deaths: The predicted number of weekly deaths have been calculated from historic data modelled for the periods **2015-2019** and **2023-2024** (i.e. excluding the period affected directly by the COVID-19 pandemic). A single negative binomial model using population estimates as an offset has been used for unnatural deaths allowing for age, sex and provincial variations in mortality rates. Negative binomial models have been fitted for natural deaths in each province in 10-year age groups from 5 years of age, allowing for different historical trends in each age group. In contrast, for <1 year and 1-4 years, the predicted numbers were set to the average rates for the periods **2015–2019** and **2023-2024** for males and females combined. Estimation of the predicted numbers of weekly deaths, against which to assess the excess, was originally achieved using a time series approach. For monitoring in 2022, a negative binomial modelling approach was introduced which took into account estimates of the population as well as the weekly variations in the numbers of deaths. After a careful evaluation of the trends in mortality rates since 2014, the models were adjusted for monitoring in 2023. It was noted that rates of change in mortality differed by age group. Briefly, the predicted values for the weekly deaths are based on negative binomial models for natural deaths for each province for 10-year age groups (to deal with digit preference in the deaths) from 5-years of age allowing for age-specific trends. For child deaths <1 year and 1-4 years, the average deaths rates for 2015 – 2019 were continued. Deaths in the 10-year age groups have been redistributed to the component five-year age groups in proportion to mortality increases between the 2 five-year age groups from model life table (Coale & Demeny West level 20) up to the age group 35-44. The apportionment for age group 35-44 was applied to all the older age groups.

P-score: The p-score is frequently used to describe excess mortality. It is the percentage change in the number of deaths from the expected number for that week. Negative values below 0% reflect a deficit in deaths while positive values reflect an excess.

Growing demographic uncertainty: Uncertainty about the estimates of completeness of death registration has unfortunately grown through a lack of good quality demographic data in recent years. The 2022 census was unable to provide much-needed contemporary information regarding fertility and mortality trends, and the last South Africa Demographic and Health Survey and mid-census Community Surveys were conducted in 2016.

Background

The series of reports on weekly deaths in South Africa, based on data from the National Population Register provided to the SAMRC started in March 2020. During 2025, the data management system has been further systematised and upgraded while the estimation of the predicted number of weekly deaths has been re-estimated to consider the extended data series including both the pre-COVID (2015-2019) and post-COVID (2023-2024) periods. This report for December 2025, is the first and only report for 2025, and provides estimates of the weekly number of deaths of all persons in South Africa up to the end of epidemiological **Week 53** of **2025**, covering the period **29 December 2019** till **3 January 2026** for epi-years **2020 to 2025.** It reports national estimates for all causes of death as well as natural and unnatural causes separately. The report concludes with a section reflecting on the annual trends and patterns of reported deaths in South Africa over the six-year period 2020-2025 when compared with the baseline expected deaths.

Trends during 2025

- While the weekly numbers of deaths were tracking within the uncertainty bounds, from **July 2025**, the weekly numbers dropped below the predicted number and from **Week 29** onwards, the numbers often fell below the lower uncertainty bound. There were no unusual spikes in the numbers.

- The numbers of deaths from unnatural causes have tracked consistently lower than the predicted number of deaths throughout 2025, the observed number mostly fell within the uncertainty bounds. The number of natural deaths, however, fell below the lower uncertainty bound for several consecutive periods from **Week 30** onwards.

- The lower-than-expected number of deaths from natural causes observed in the 2nd half of 2025 was more marked in **Limpopo** and **Eastern Cape** and to some extent, in the provinces of **North West**, **Mpumalanga** and **Free State.** In addition, the lower-than-expected deaths from natural causes was more marked among **children <1 years** and **1-4 years** and **persons 80-years and older.**

- **The reason for the noticeably lower numbers of natural deaths in the second half of 2025 is unclear at present and is the subject of ongoing evaluation and investigation.**

Annual trends from 2020 - 2025

- This report includes a review of the annual numbers of deaths observed during the six-year period 2020-2025.

    - The burden of Covid-mortality, with increased mortality from natural causes in 2020 and 2021, fell particularly heavily on people over the age of 40 years.

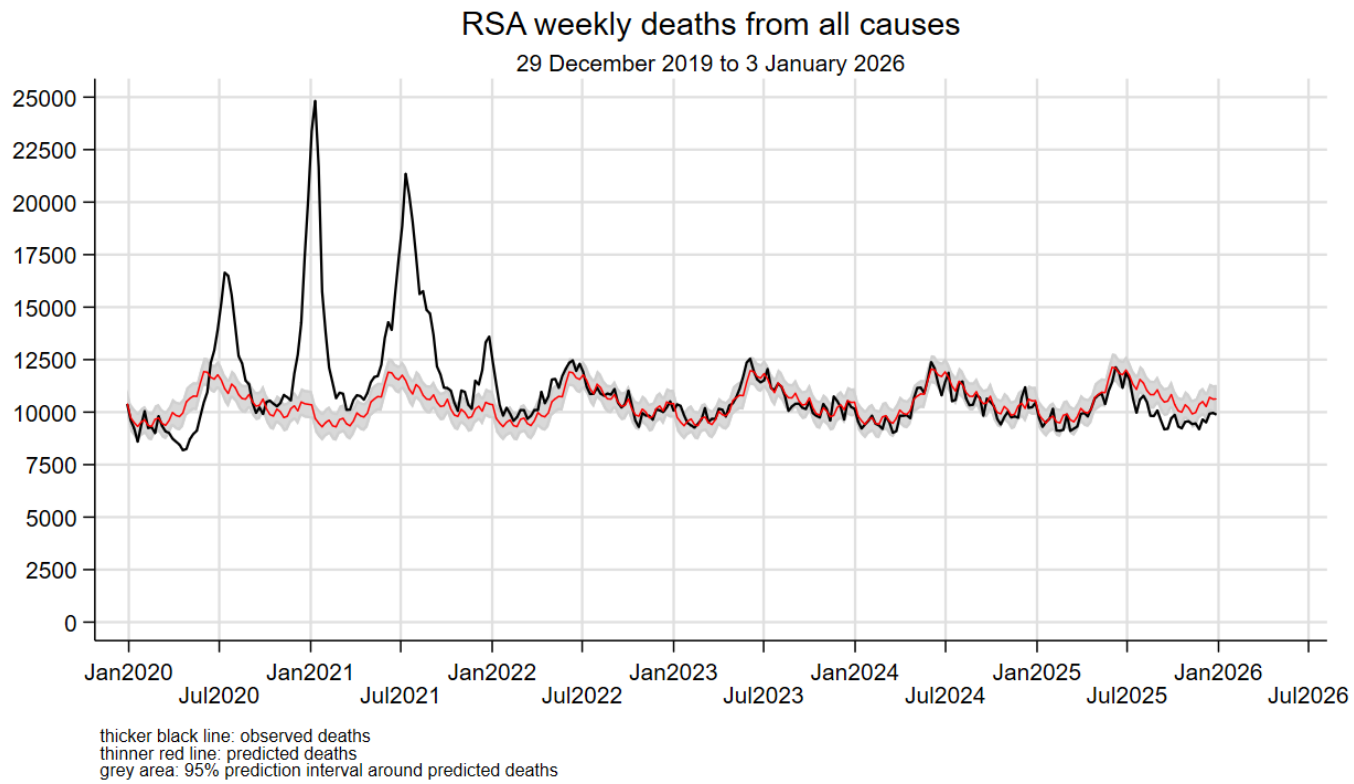
    - Mortality from natural causes, reverted towards the numbers predicted, from 2022 onwards. However, this has not been consistent across all age groups.
        - Deaths from natural causes have remained 10%-15% higher than predicted amongst males aged 20-39 years persistently over the period.
        - Deaths from natural causes have dropped below predicted among children <1 years and 1-4 years as well as older persons 80+ years.

    - In contrast to the trend in natural deaths, the unnatural deaths were lower than expected in 2020, reverting to the predicted number in 2021 and increasing by 7% in 2022. Unnatural deaths reverted to the predicted numbers but in 2025, had fallen to 10% below the predicted. Since there is sometimes a longer delay in the registration of death from an unnatural cause, it is possible that this decrease might be reduced slightly once late registrations have been included.

    - Trends in unnatural deaths also varied by age group with the following noticeable trends:
        - increased excess deaths from unnatural causes among females 5-19 years from 2021-2024,
        - increasing excess deaths among infants over the period, and
        - consistent decreases in excess deaths among older persons 80+ years.

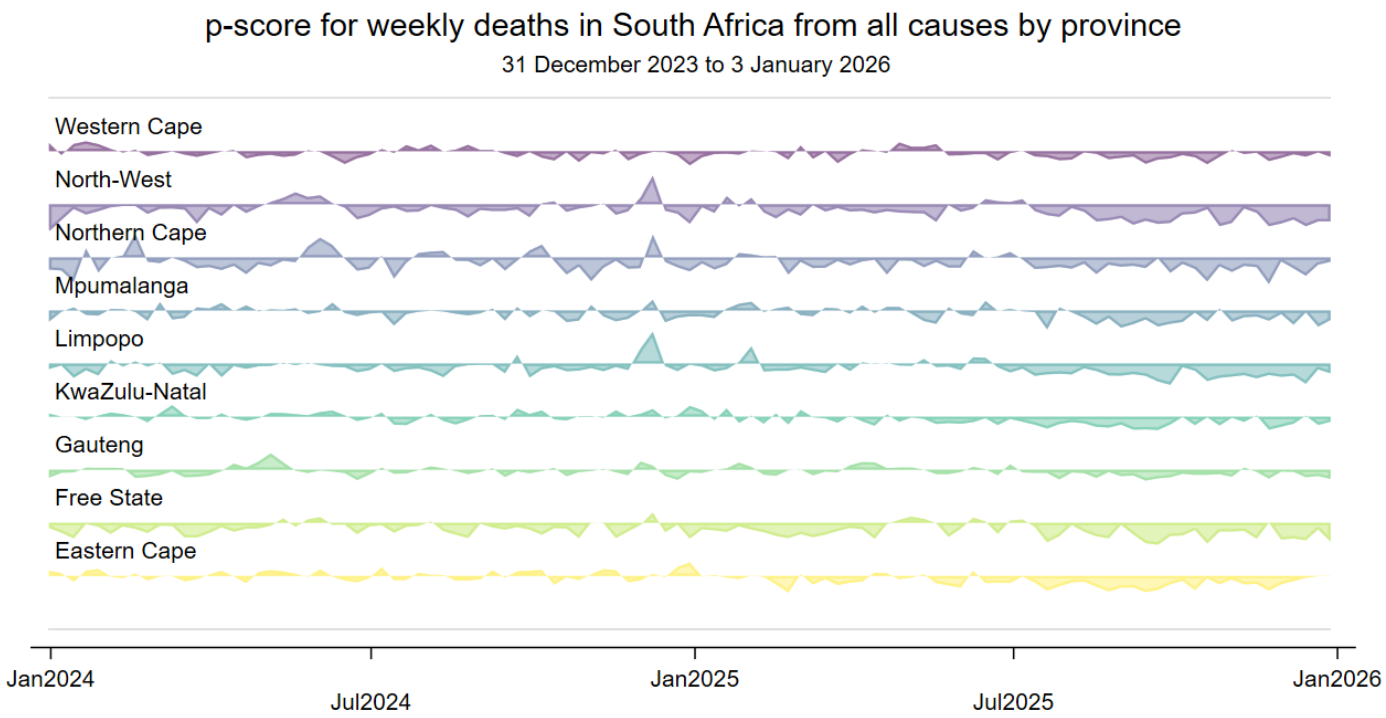
    - There has been increased excess deaths from unnatural causes among female age 5-19 years and an increase in excess deaths among infants in the period 2021-2024, with a decrease in excess deaths among persons 80+ years.

    - When comparing the estimated against predicted deaths, readers should be alert to the possibility that the difference between the two may arise from (i) changing patterns of mortality affecting reported deaths; (ii) statistical model errors in the derivation of the predicted deaths; or (iii) a combination of both (i) and (ii).



Numbers have been scaled to the estimated actual number of deaths

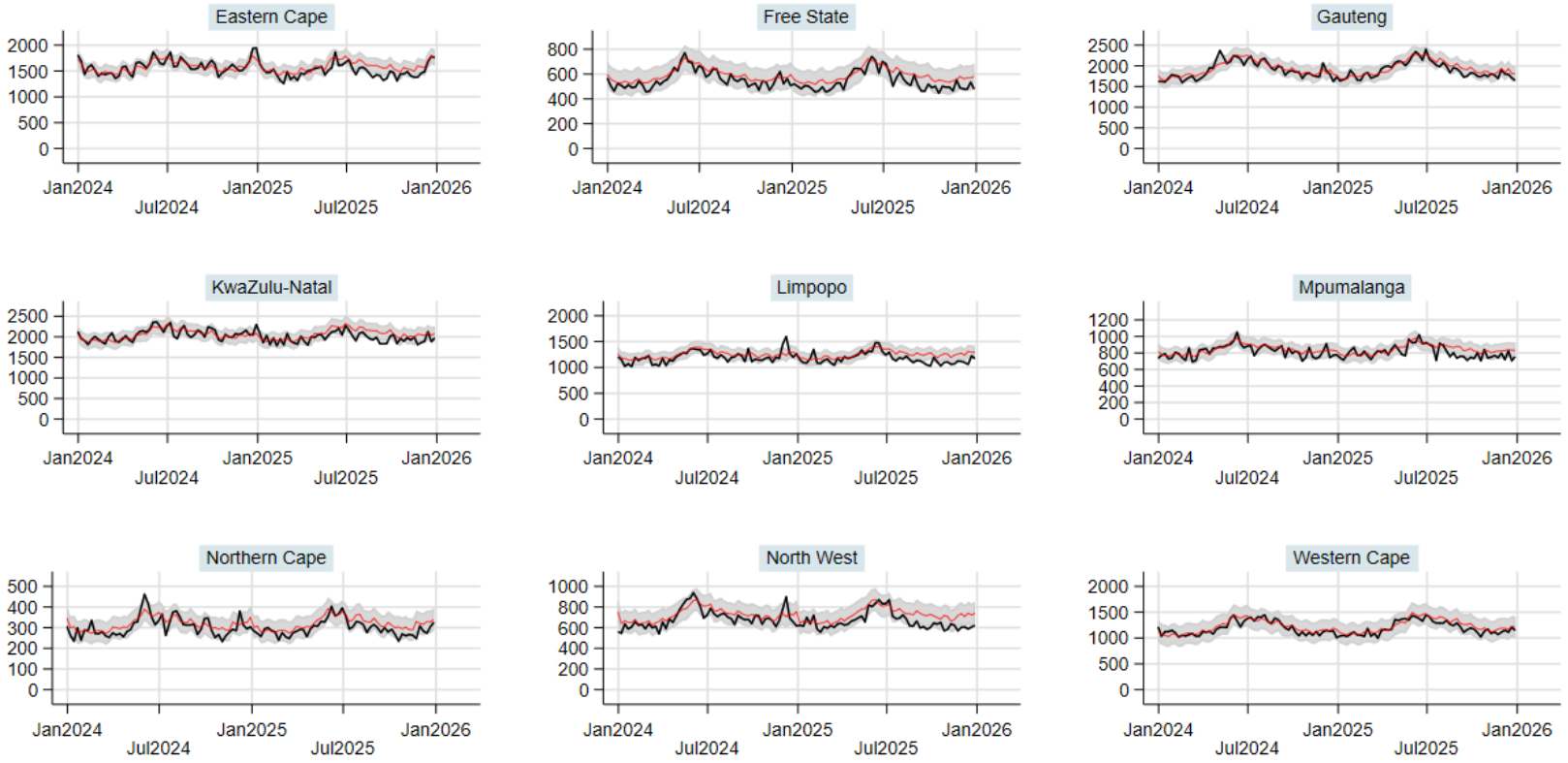
All-cause deaths by province



Y-axis: each vertical increment represents 50% above or below predicted

Deaths from all causes, by province

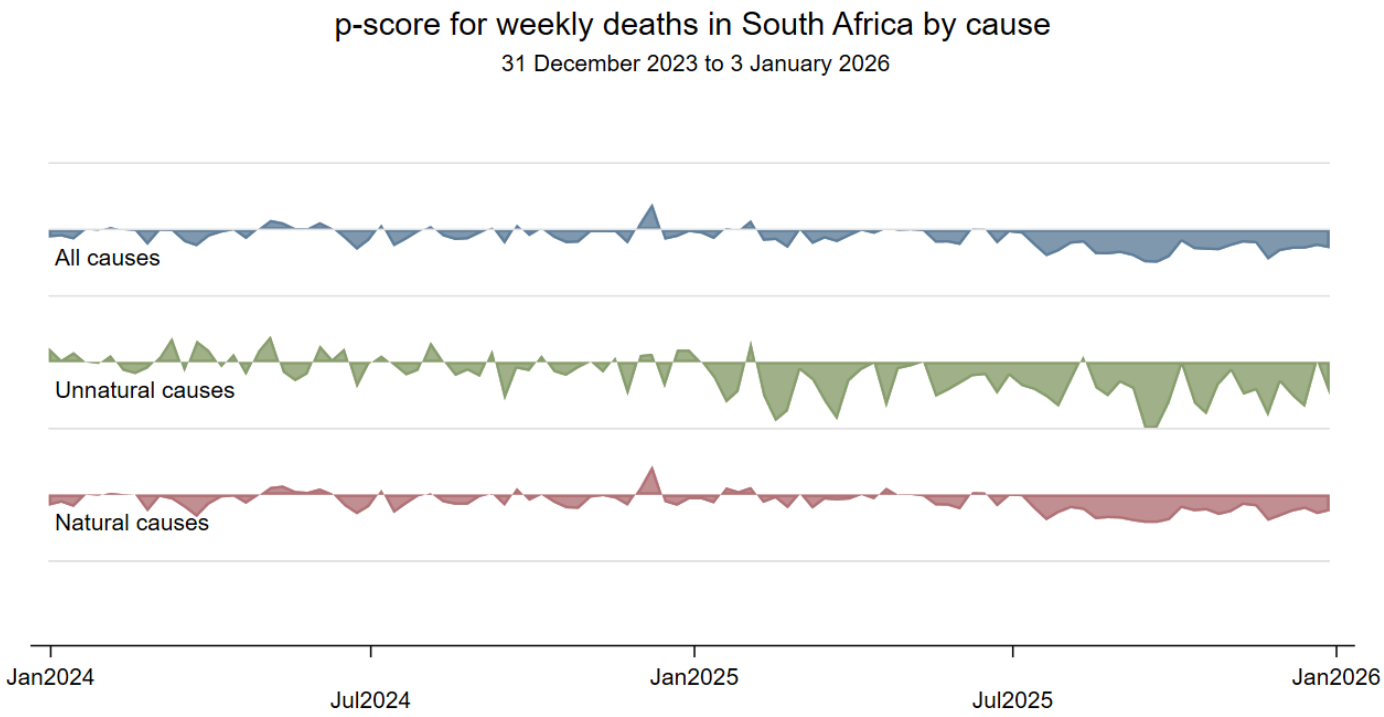
31 December 2023 to 3 January 2026



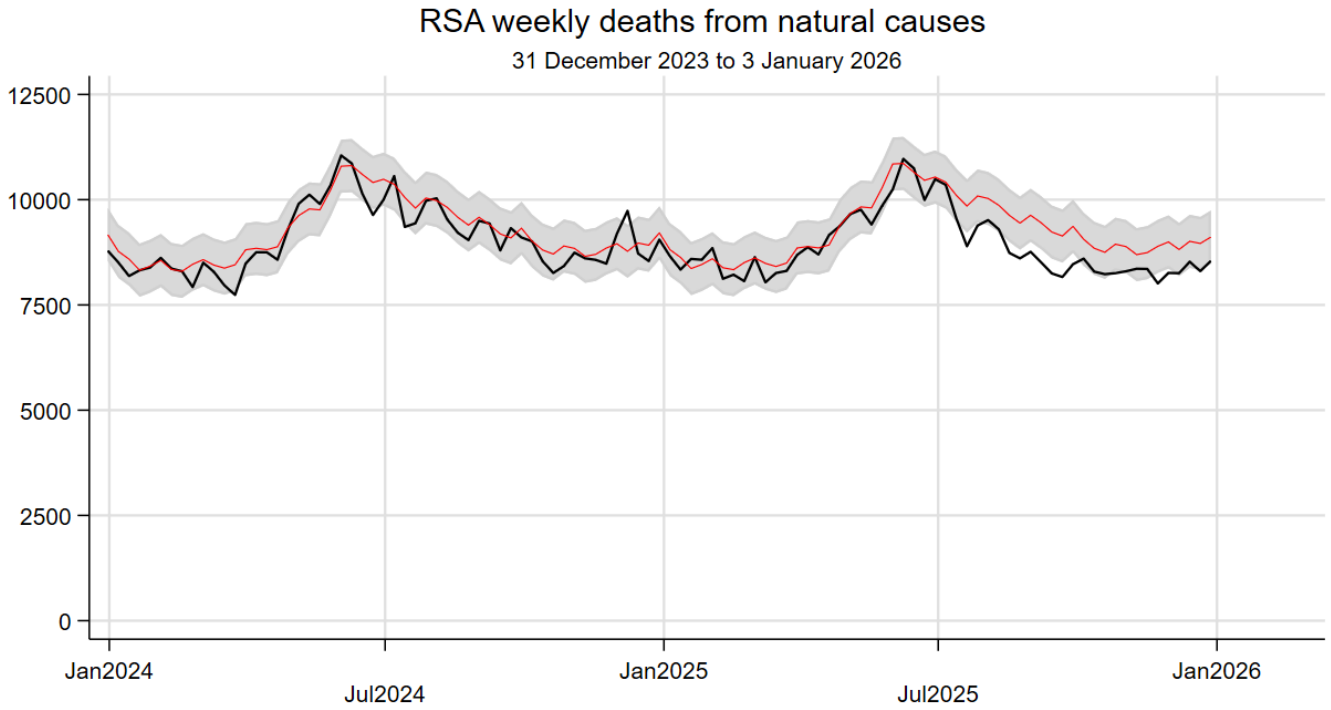
thicker black line: observed deaths
thinner red line: predicted deaths
grey area: 95% prediction interval around predicted deaths

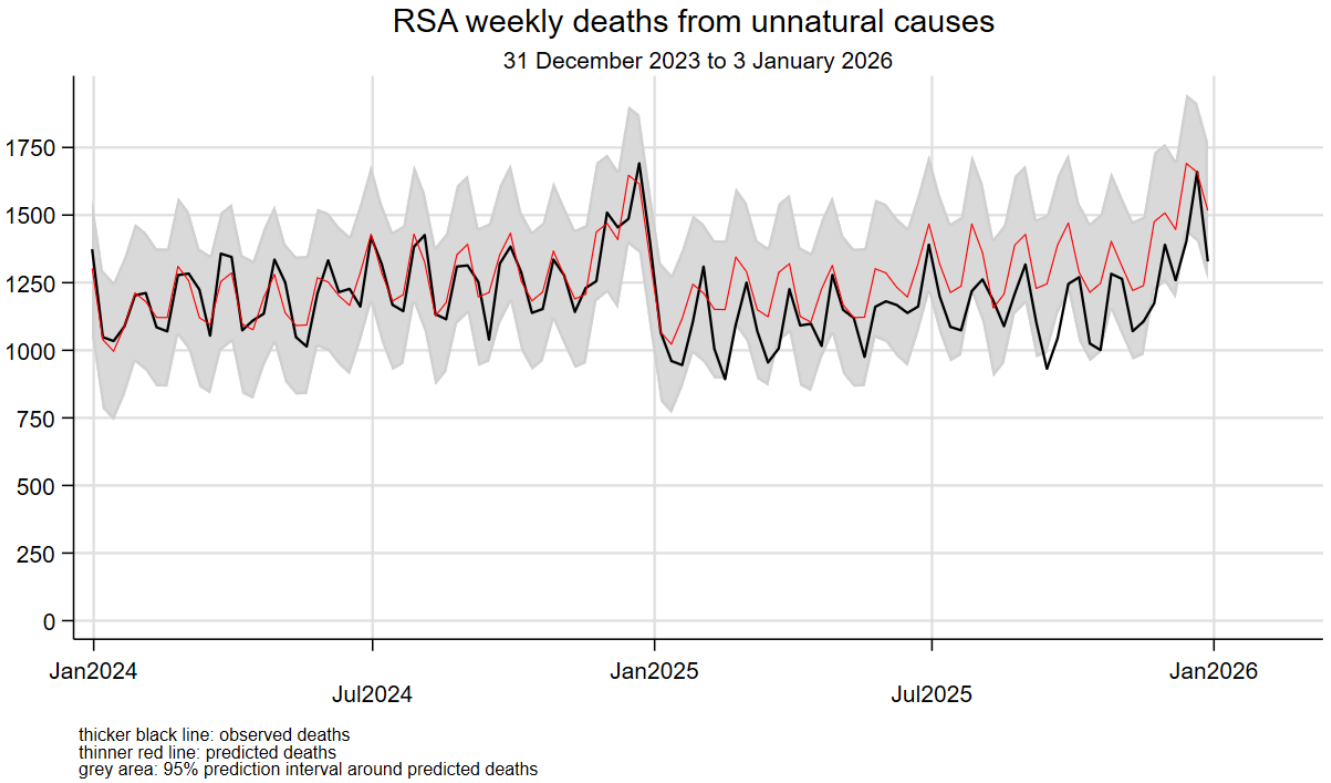
Numbers have been scaled to the estimated actual number of deaths

Natural and unnatural deaths



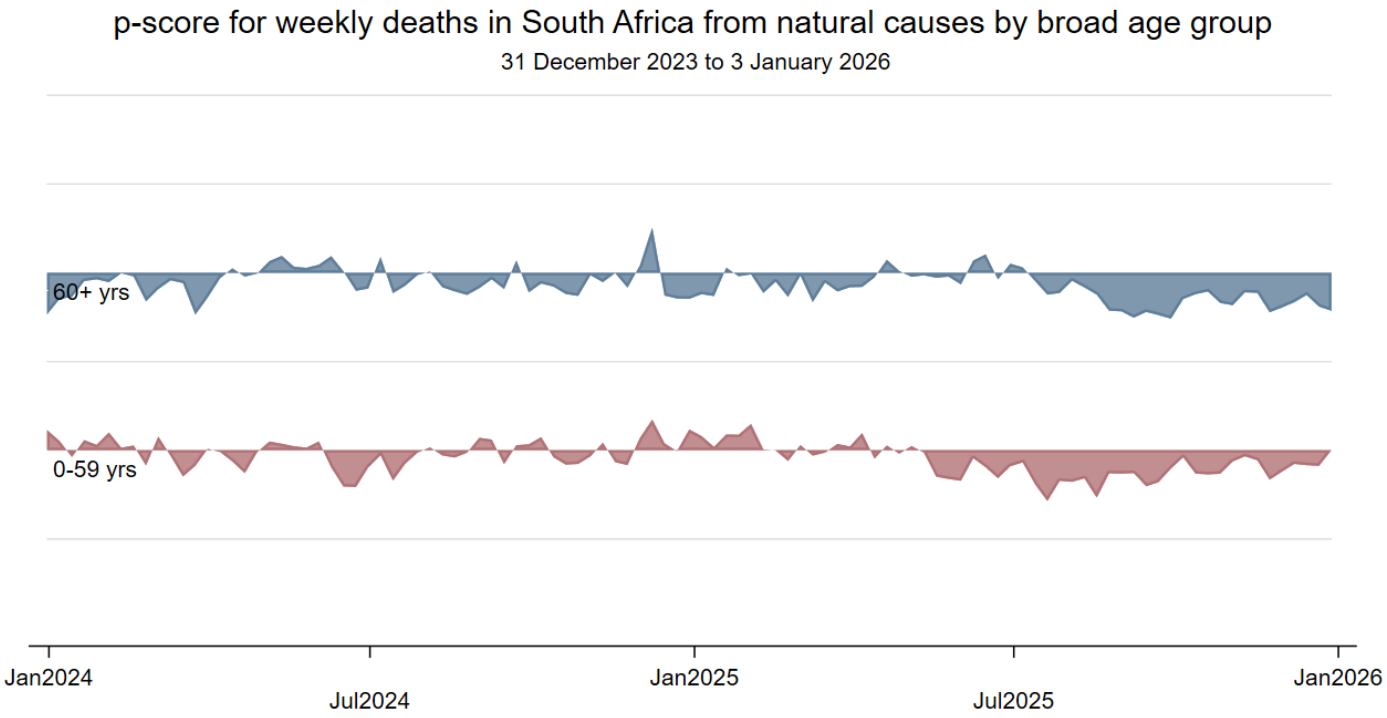
Y-axis: each vertical increment represents 25% above or below predicted



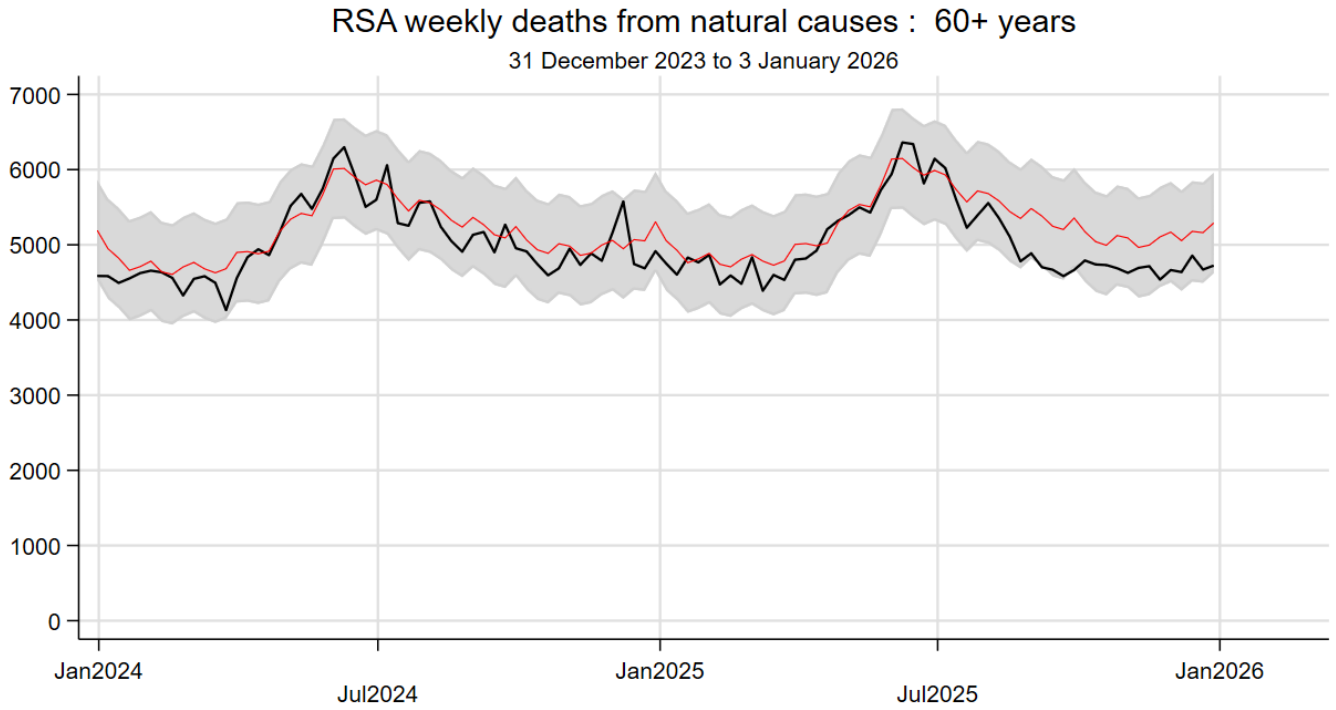


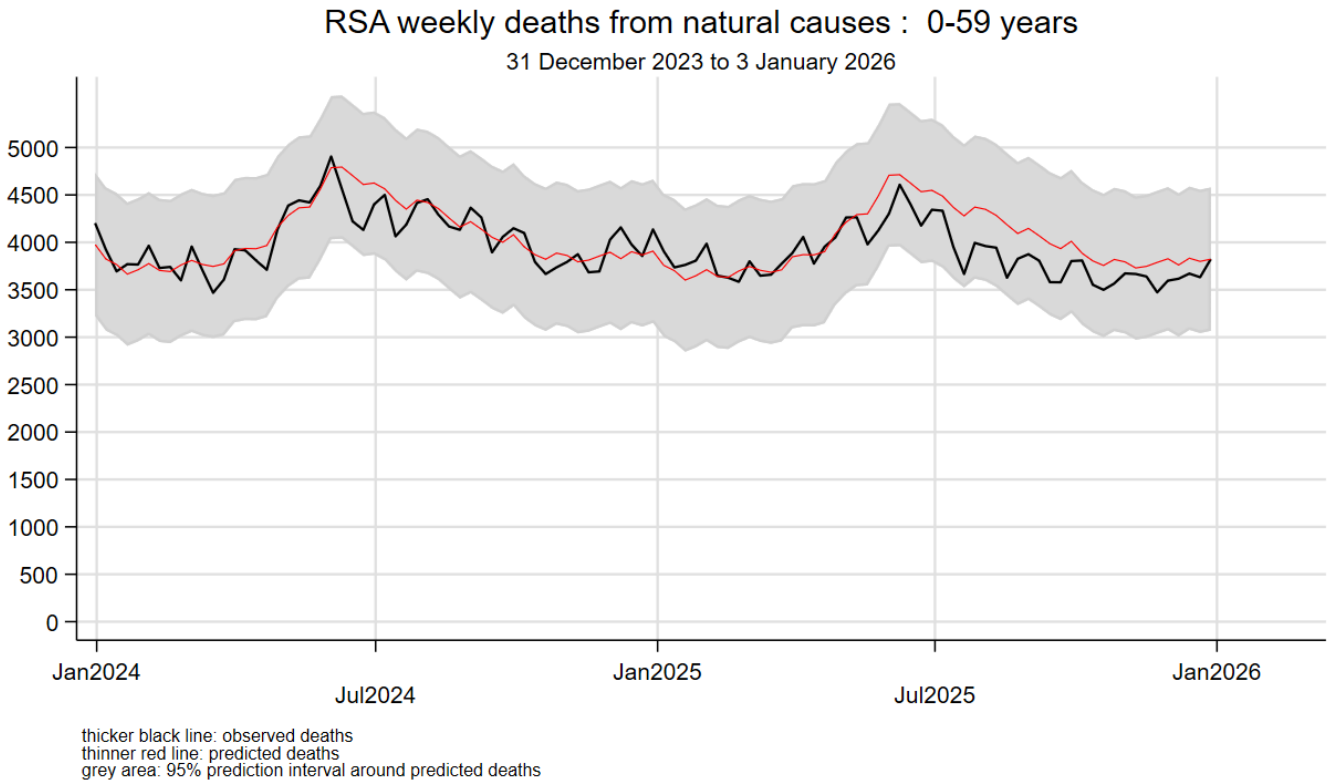
Numbers have been scaled to the estimated actual number of deaths

Natural deaths by broad age groups



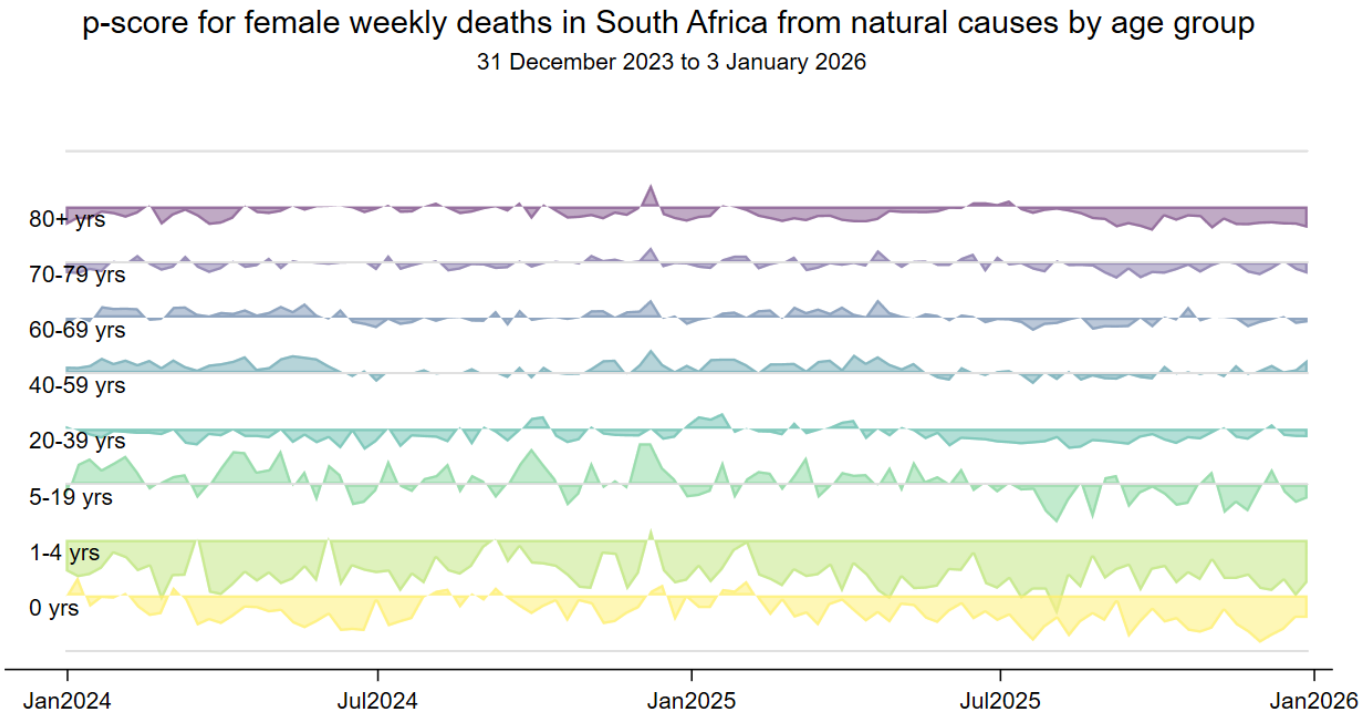
Y-axis: each vertical increment represents 25% above or below predicted





Numbers have been scaled to the estimated actual number of deaths

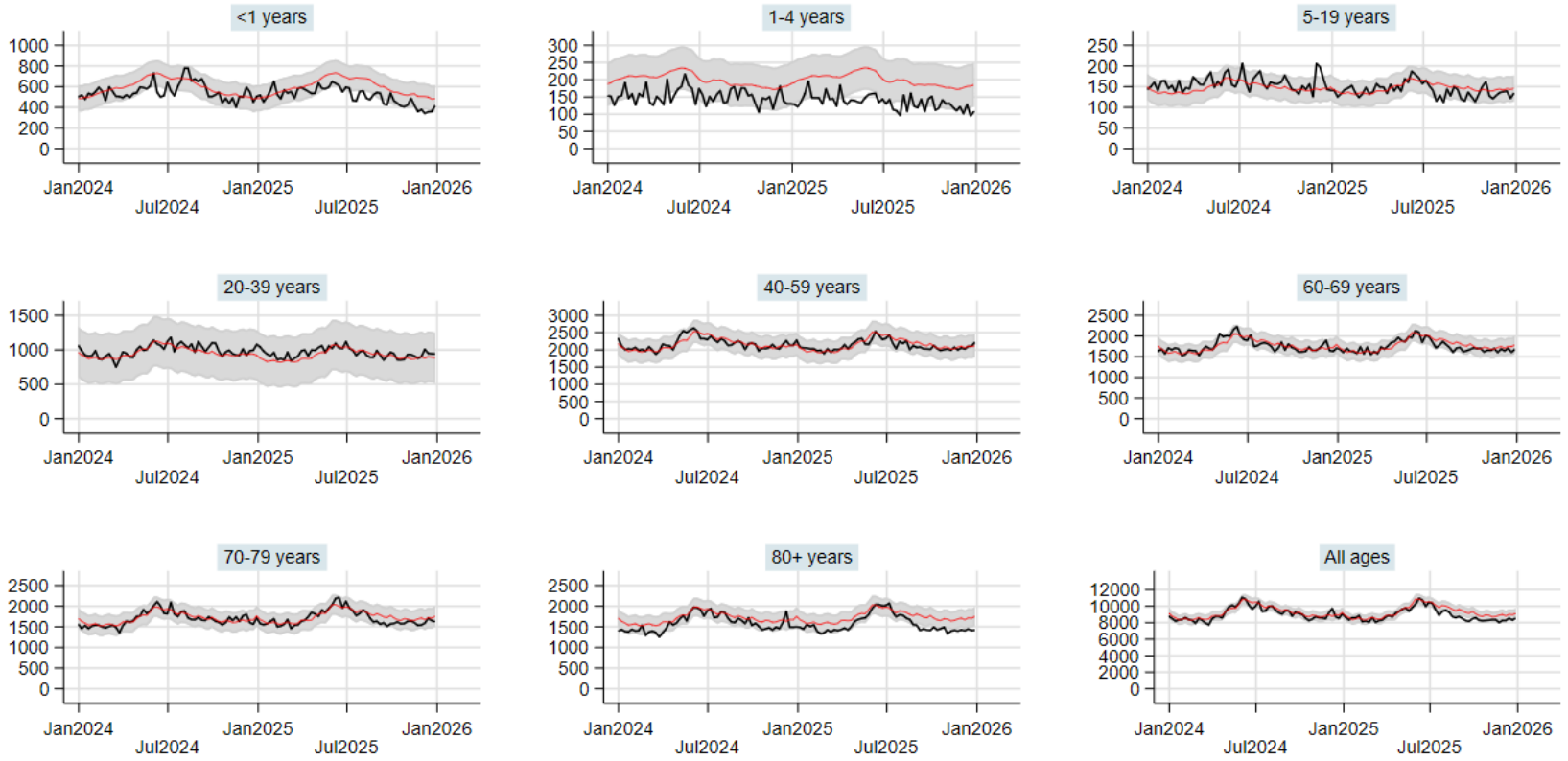
Natural deaths by age group



Y-axis: each vertical increment represents 50% above or below predicted

RSA weekly deaths from natural causes, by age group

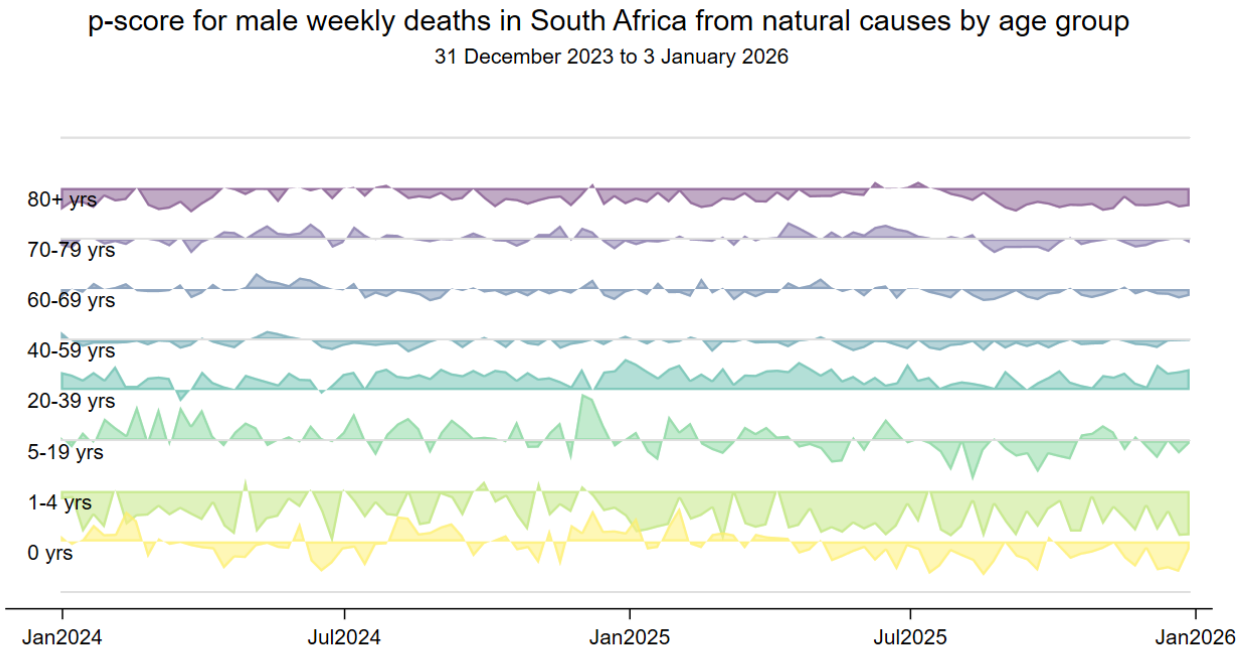
31 December 2023 to 3 January 2026



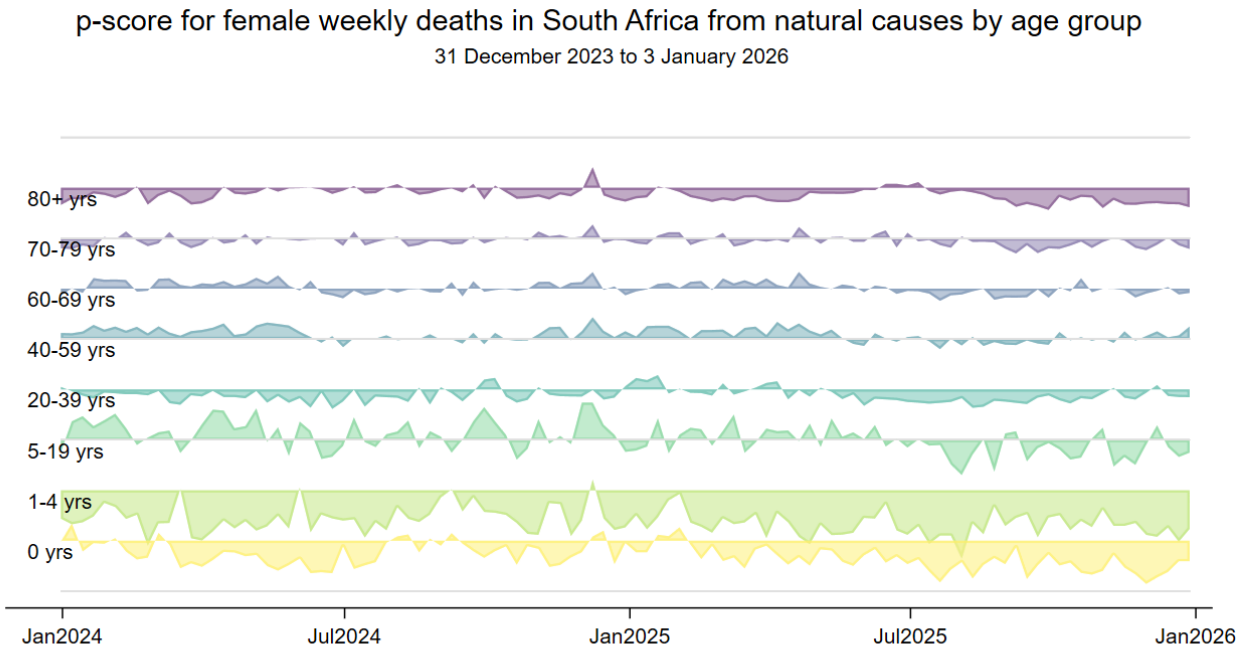
thicker black line: observed deaths
thinner red line: predicted deaths
grey area: 95% prediction interval around predicted deaths

Numbers have been scaled to the estimated actual number of deaths

Natural deaths by sex and age group



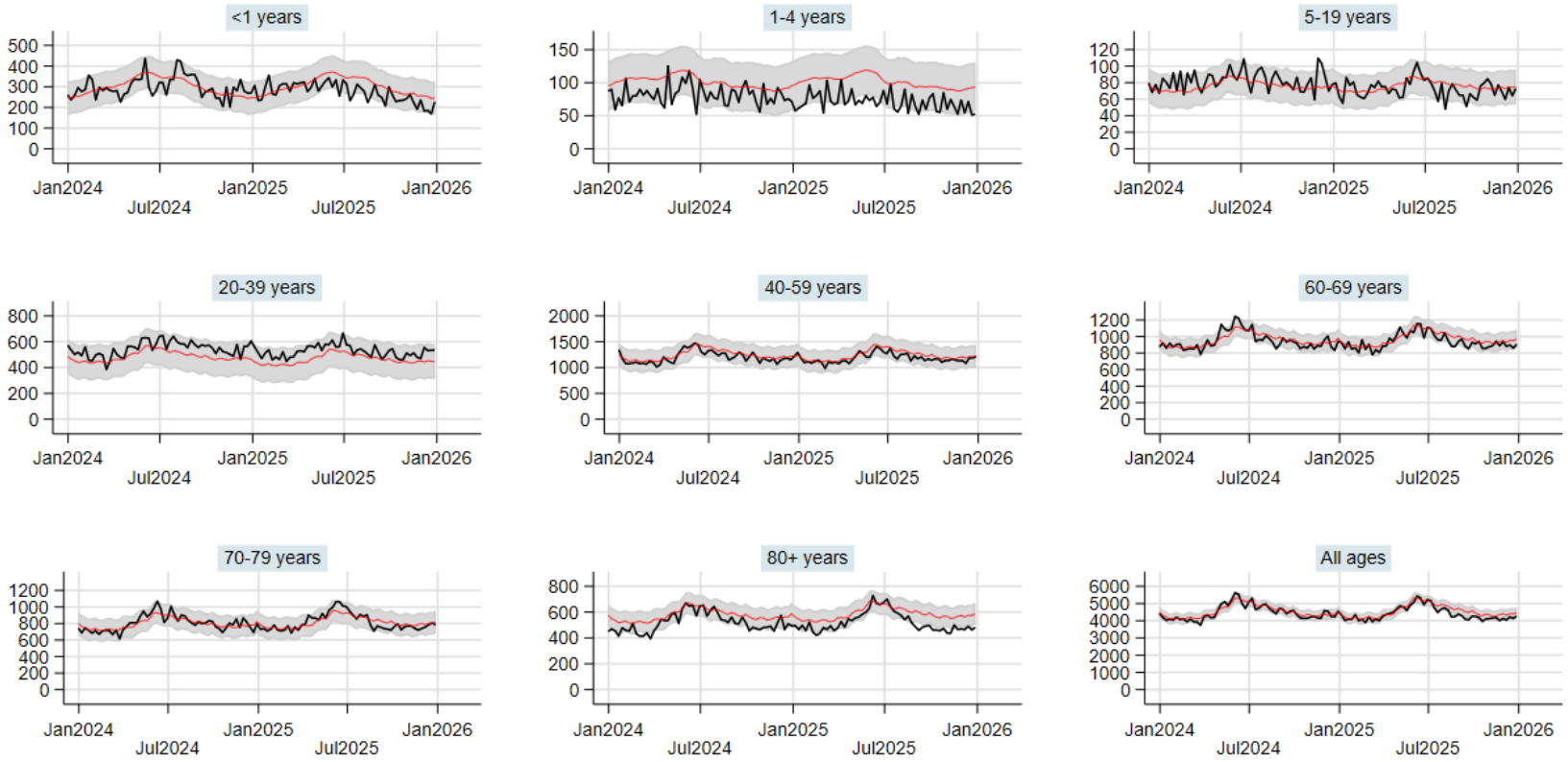
Y-axis: each vertical increment represents 50% above or below predicted



Y-axis: each vertical increment represents 50% above or below predicted

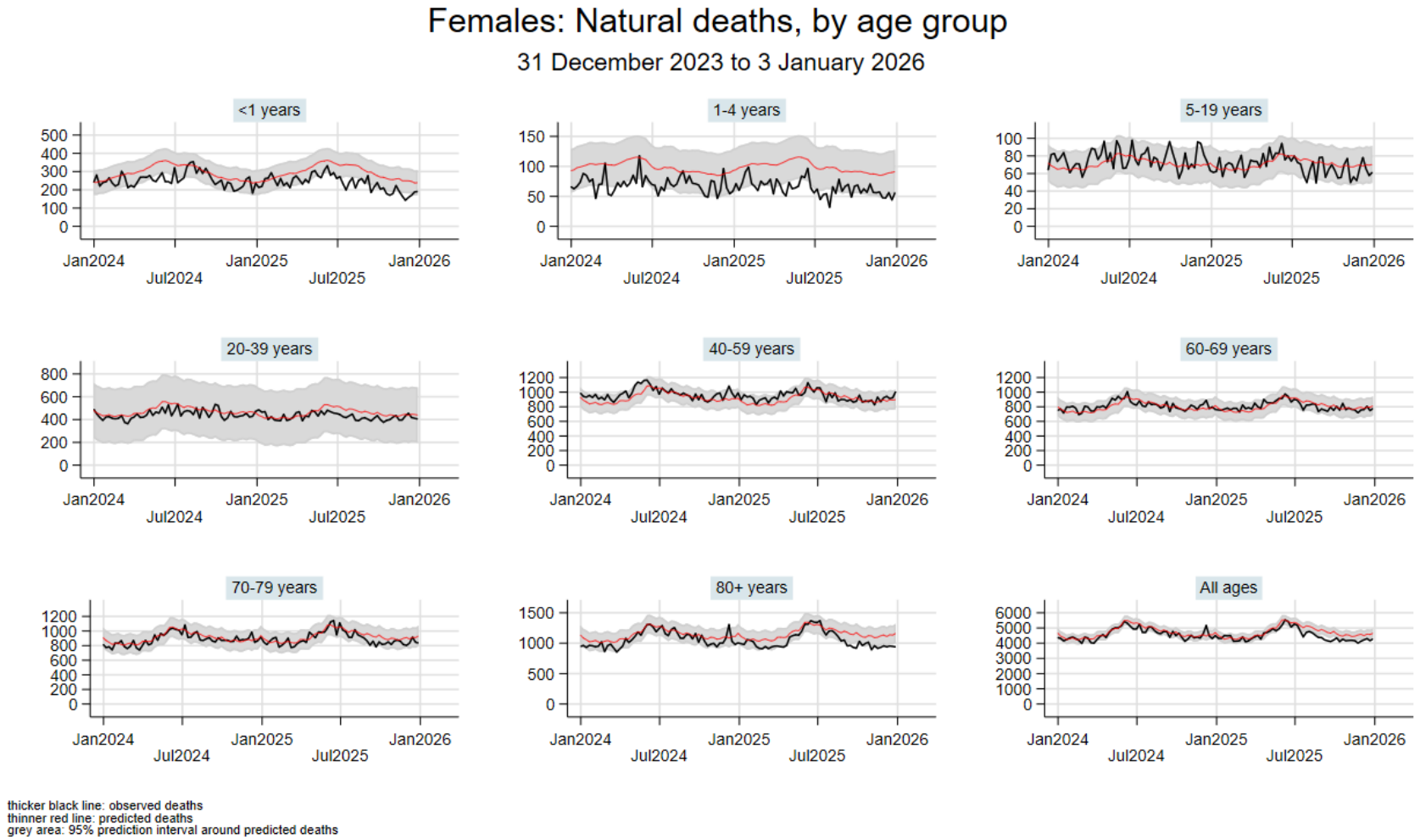
Males: Natural deaths, by age group

31 December 2023 to 3 January 2026



thicker black line: observed deaths
thinner red line: predicted deaths
grey area: 95% prediction interval around predicted deaths

Numbers have been scaled to the estimated actual number of deaths



Numbers have been scaled to the estimated actual number of deaths

Review of annual numbers of deaths in South Africa, 2020-2025

Table 1 shows the numbers of total deaths (all cause) and natural deaths by sex for each epi-year from 2020-2025[1]. The predicted numbers, based on an extrapolation of the mortality trends (by age, and sex, and province) observed in the pre-Covid era (2015-2019) together with the post-Covid era (2023-2024) applied to our best estimate of the population size in each group indicate an anticipated drop between 2020 and 2021, followed by gentle year on year increase. Table 1 shows that the observed number of deaths for the country was estimated at more than 588 000 in 2020, somewhat higher than the predicted, and increased to nearly 705 000 in 2021 which was markedly higher than the predicted. Thereafter, the number of observed deaths declined to just over 531 000 in 2025.

Table 1: Observed and predicted deaths from all causes and from natural causes by sex, South Africa 2020-2025

	Total deaths		Natural deaths					
	Both Sexes		Both Sexes		Males		Females	
Epi-year	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted
2020	588 537	549 187	537 389	488 667	258 962	241 005	278 426	247 662
2021	704 799	537 700	644 609	477 308	309 627	235 041	334 982	242 266
2022	554 669	538 307	488 795	476 557	242 683	234 375	246 112	242 182
2023	543 782	541 057	478 279	477 780	237 342	234 836	240 938	242 944
2024	536 302	544 619	471 842	479 709	232 908	235 504	238 934	244 205
2025	531 840	559 270	470 417	491 126	232 794	240 818	237 623	250 308

The proportions of excess deaths are shown for each epi-year in Figure 1. This compares the observed with the predicted number over the whole year and is shown for total deaths (all cause in blue), deaths from natural causes (in orange) and the deaths from unnatural causes (in mustard). The impact of COVID-19, particularly in 2021, is evident: in that year, natural deaths were 35% higher than expected, while the number of unnatural deaths was close to the predicted number. In contrast, the number of unnatural deaths in 2020 were 15% lower than predicted, associated with the reduced use of alcohol as well as reduced travel during strict lockdown. In the post-Covid era, the number of all cause deaths reverted to being reasonably close to the predicted, albeit with slight differences in the excess between natural and unnatural causes. Excess deaths declined slowly from 3% in 2022 to -5% in 2025. Natural deaths, which account for the large majority (88%) of the total deaths over this period, followed a similar pattern. In the case of unnatural deaths, the excess changed from being 7% above the predicted in 2022 to being just below the predicted in 2024 but, 10% below the predicted in 2025. (It must be noted that a trend in excess deaths, reflects the trends in the observed numbers relative to the model used to calculate the predicted numbers. Applying a different approach to model the predicted could yield different estimates of excess.)

[1] An epi-year runs for the 52 (or 53 in some calendar years) weeks beginning on the Sunday in December or January with four or more days in that week falling in January, up to and including the last week beginning on the last Sunday in December with three or fewer days in that week falling in January.

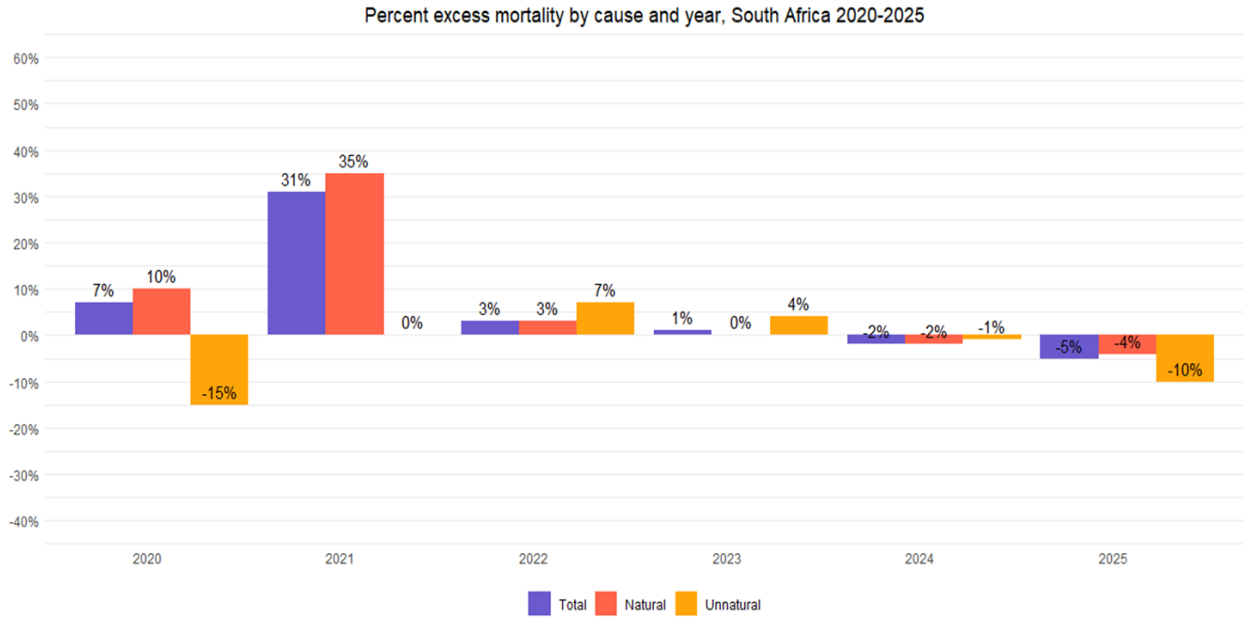


Figure 1: Percent excess mortality by cause and year, South Africa 2020-2025.

Trends in deaths from natural causes 2020-2025

The annual excess deaths from natural causes are examined further in Table 2. Excess mortality during Covid-era was a bit higher for females than for males while by 2025 the excess was negative with that of females being further below the expected number than that for males. It is possible that this pattern is a result of the higher proportion of older females than older males in the population.

Table 2: Proportional excess mortality from all causes and from natural causes by sex, South Africa 2020-2025

Epi-year	Natural deaths		
	Both Sexes	Males	Females
2020	10%	7%	12%
2021	35%	32%	38%
2022	3%	4%	2%
2023	0%	1%	-1%
2024	-2%	-1%	-2%
2025	-4%	-3%	-5%

The numbers of observed and expected deaths from natural causes, by age and sex from 2020-2025 are given in Table 2 and shown in Figure 2. As can be seen from Figure 2, the burden of COVD-19 mortality fell particularly heavily on those over the age of 40 in 2020 and 2021. Younger children experienced somewhat lighter mortality in 2020 and 2021, a feature largely attributable to the attenuating effects of lockdowns on the transmission of communicable diseases among those under the age of 5. Since 2021, the pattern of excess mortality by age and sex was complex, with generally higher excess mortality among males (especially those aged 20-39) than females, and growing decrease in mortality among children age <1 and 1-4 years. Again, as noted, **this may well be an artifact of the extrapolation of mortality rates used to calculate the predicted values rather than a**

real phenomenon. Unfortunately, timely cause of death data are not available to provide definitive information about the reasons for the observed excess mortality. Investigations into the spatio-temporal patterns and comparison with other surveillance data such as influenza and RSV trends and climate related information such as heat waves, will be helpful to interpret the excess deaths, but it remains critical that South Africa revamps the death registration system to enable more rapid access to the medical cause of death information.

Figure 2: Percent excess mortality from natural causes by age group and sex, South Africa 2020-2024

Table 3: Observed and predicted deaths from natural causes by age group for males and females, South Africa 2020-2024

MALES (Natural deaths)

	0 years		1-4 years		5-19 years		20-39 years		40-59 years		60-69 years		70-79 years		80+ years	
Epi-year	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**
2020	12 607	15 793	3 804	5 043	4 224	4 128	32 189	31 633	74 762	68 598	56 229	48 598	44 714	38 945	30 433	28 268
2021	16 450	15 612	4 431	5 035	4 759	4 014	35 990	29 505	89 032	66 314	67 274	47 732	55 121	38 485	36 570	28 344
2022	17 766	15 619	5 443	5 148	4 602	3 981	31 665	28 030	67 741	65 552	48 854	48 083	39 765	39 101	26 846	28 860
2023	16 585	15 621	4 855	5 222	4 514	3 973	30 987	26 593	64 095	65 022	48 763	48 892	40 315	40 254	27 227	29 259
2024	15 564	15 661	4 292	5 263	4 298	3 955	28 321	25 265	62 449	64 522	49 272	49 663	41 662	41 381	27 050	29 793
2025	14 483	15 951	3 764	5 367	3 836	4 004	27 863	24 478	62 542	65 324	49 683	51 386	43 037	43 269	27 586	31 039

FEMALES (Natural deaths)

	0 years		1-4 years		5-19 years		20-39 years		40-59 years		60-69 years		70-79 years		80+ years	
Epi-year	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**
2020	10 857	15 353	3 292	4 903	3 836	3 826	32 128	31 013	64 909	53 454	51 002	39 890	51 358	43 271	61 044	55 954
2021	14 041	15 179	4 144	4 890	4 301	3 728	33 733	28 924	78 327	51 190	63 033	39 445	63 801	43 185	73 602	55 725
2022	14 987	15 193	4 696	4 999	4 045	3 711	27 402	27 475	53 580	50 061	41 325	40 032	43 902	44 182	56 175	56 529
2023	14 052	15 195	4 180	5 072	4 136	3 716	25 195	26 097	51 563	49 126	41 450	40 827	44 426	45 530	55 935	57 380
2024	13 314	15 244	3 686	5 117	3 992	3 709	23 201	24 815	50 887	48 275	42 281	41 502	45 979	46 941	55 594	58 603
2025	12 508	15 536	3 396	5 222	3 637	3 760	22 637	24 072	49 777	48 373	42 700	42 960	47 464	49 211	55 505	61 173

Table 4: Percent excess deaths from natural causes by age group for males and females, South Africa 2020-2025

MALES (Natural deaths)

Epi-year	0 years	1-4 years	5-19 years	20-39 years	40-59 years	60-69 years	70-79 years	80+ years
2020	-20%	-25%	2%	2%	9%	16%	15%	8%
2021	5%	-12%	19%	22%	34%	41%	43%	29%
2022	14%	6%	16%	13%	3%	2%	2%	-7%
2023	6%	-7%	14%	17%	-1%	0%	0%	-7%
2024	-1%	-18%	9%	12%	-3%	-1%	1%	-9%
2025	-9%	-30%	-4%	14%	-4%	-3%	-1%	-11%

FEMALES (Natural deaths)

Epi-year	0 years	1-4 years	5-19 years	20-39 years	40-59 years	60-69 years	70-79 years	80+ years
2020	-29%	-33%	0%	4%	21%	28%	19%	9%
2021	-7%	-15%	15%	17%	53%	60%	48%	32%
2022	-1%	-6%	9%	0%	7%	3%	-1%	-1%
2023	-8%	-18%	11%	-3%	5%	2%	-2%	-3%
2024	-13%	-28%	8%	-7%	5%	2%	-2%	-5%
2025	-19%	-35%	-3%	-6%	3%	-1%	-4%	-9%

Trends in deaths from unnatural causes 2020-2025

Given the recent change in the excess deaths resulting from unnatural causes, we examine the changes in annual excess deaths from unnatural causes by age and sex. The numbers of observed and expected deaths from unnatural causes, by age and sex from 2020-2025. The percent excess by age and sex is displayed in

Figure 3, based on the numbers shown in Table 5 and Table 6. The number of unnatural deaths were below the predicted during 2020 and to a lesser extent in 2021. Several trends are noticeable:

- increased excess deaths from unnatural causes among females 5-19 years from 2021-2024,
- Increasing excess deaths among infants over the period, and
- Consistent decreases in excess deaths among older persons 80+ years.

Again, it must be reiterated that the excess is based on the observed deaths as well as the extrapolation of the historical data to estimate the predicted. Unfortunately, timely cause of death data are not available to provide definitive information about the reasons for the observed excess mortality.

Figure 3: Percent excess mortality from unnatural causes by age group and sex, South Africa 2020-2025

Table 5: Observed and predicted deaths from unnatural causes by age group and sex, South Africa 2020-2025

MALES (Unnatural deaths)

	0 years		1-4 years		5-19 years		20-39 years		40-59 years		60-69 years		70-79 years		80+ years	
Epi-year	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**
2020	511	620	921	980	3 141	3 592	21 440	24 839	9 408	11 431	2 342	2 919	1 284	1 528	794	1 018
2021	591	617	934	986	3 492	3 617	26 035	24 451	11 080	11 653	2 732	2 910	1 444	1 533	828	1 050
2022	784	624	1 109	1 019	3 918	3 733	28 080	24 630	12 374	12 185	2 960	2 986	1 485	1 586	935	1 097
2023	649	630	1 105	1 045	3 634	3 876	27 455	24 800	12 695	12 789	3 154	3 093	1 696	1 662	971	1 139
2024	783	639	1 095	1 065	3 606	3 998	26 439	25 041	12 666	13 418	3 099	3 199	1 706	1 738	929	1 188
2025	733	662	988	1 104	3 293	4 192	24 587	25 918	12 563	14 394	3 006	3 381	1 701	1 856	909	1 273

FEMALES (Unnatural deaths)

	0 years		1-4 years		5-19 years		20-39 years		40-59 years		60-69 years		70-79 years		80+ years	
Epi-year	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**	**Obs.**	**Pred.**
2020	464	573	635	692	1 449	1 375	4 001	5 067	2 381	2 865	953	1 115	669	888	754	1 018
2021	482	570	598	696	1 717	1 376	4 875	4 990	2 695	2 892	1 003	1 117	786	898	896	1 037
2022	576	577	765	720	1 887	1 410	4 948	5 029	3 006	2 995	1 196	1 152	866	934	986	1 074
2023	649	583	751	738	1 811	1 452	4 702	5 073	3 036	3 112	1 230	1 193	908	979	1 056	1 114
2024	634	591	786	753	1 734	1 488	4 756	5 132	2 942	3 238	1 290	1 232	971	1 026	1 023	1 162
2025	682	613	716	781	1 567	1 555	4 480	5 325	3 015	3 448	1 196	1 300	1 024	1 098	963	1 244

Table 6: Percent excess mortality from unnatural causes by age group and sex, South Africa 2020-2025

MALES (Unnatural deaths)

Epi-year	0 years	1-4 years	5-19 years	20-39 years	40-59 years	60-69 years	70-79 years	80+ years
2020	-18%	-6%	-13%	-14%	-18%	-20%	-16%	-22%
2021	-4%	-5%	-3%	6%	-5%	-6%	-6%	-21%
2022	26%	9%	5%	14%	2%	-1%	-6%	-15%
2023	3%	6%	-6%	11%	-1%	2%	2%	-15%
2024	23%	3%	-10%	6%	-6%	-3%	-2%	-22%
2025	11%	-11%	-21%	-5%	-13%	-11%	-8%	-29%

FEMALES (Unnatural deaths)

Epi-year	0 years	1-4 years	5-19 years	20-39 years	40-59 years	60-69 years	70-79 years	80+ years
2020	-19%	-8%	5%	-21%	-17%	-15%	-25%	-26%
2021	-15%	-14%	25%	-2%	-7%	-10%	-12%	-14%
2022	0%	6%	34%	-2%	0%	4%	-7%	-8%
2023	11%	2%	25%	-7%	-2%	3%	-7%	-5%
2024	7%	4%	17%	-7%	-9%	5%	-5%	-12%
2025	11%	-8%	1%	-16%	-13%	-8%	-7%	-23%