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Seven and a Half Decades of Mortality Transition in Jamaica, 1950–2025: Decadal Patterns, Historical Mortality Peaks and Troughs, Epidemiological Change, Population Ageing, Pre-Pandemic Reversal, COVID-19 Mortality Disruption, and Implications for Age-Standardised Analysis and Public Health Policy

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ABSTRACT

Mortality is among the most consequential indicators of population health because its long-term trajectory captures changes in disease exposure, living conditions, medical technology, population ageing, health-system effectiveness and extraordinary mortality shocks. This study examines Jamaica's crude death rate annually from 1950 through 2025 and provides a systematic decadal analysis of mortality peaks, troughs, reversals and potential historical explanations for these turning points. The supplied series contains 76 annual observations and indicates that the crude death rate fell from 11.14 deaths per 1,000 population in 1950 to 8.95 in 1959, averaged 8.77 during the 1960s, stabilised around 8.42 during the 1970s, declined to 7.49 by 1989, reached a decadal mean of 7.32 during the 1990s and fell further to 6.69 during the 2000s. The historical minimum was 6.36 deaths per 1,000 in 2012, after which mortality reversed direction, rising to 7.53 in 2019 and then surging to the pandemic-period maximum of 9.71 in 2021 during the COVID-19 pandemic. The rate subsequently fell to 7.91 in 2022 and 7.69 in 2023 before increasing modestly to 7.75 in 2024 and 7.80 in 2025, indicating substantial recovery from the pandemic shock but not a return to the exceptionally low mortality environment observed during the early 2010s. The findings identify three broad historical regimes—a long mortality decline, a transitional trough and reversal, and a pandemic-associated mortality shock—and suggest that Jamaica's contemporary crude mortality trajectory increasingly reflects population ageing and non-communicable disease burden rather than the infectious and nutritional mortality environment that characterised earlier stages of its epidemiological transition.

Keywords: Crude Death Rate; Jamaica; Mortality Transition; Epidemiological Transition; Demographic Ageing; Decadal Trends; Turning Points; Age Standardisation; Historical Mortality; Pandemic Mortality; Public Health Surveillance; Segmented Regression.

1.0. Introduction

Mortality is simultaneously a demographic, epidemiological, social and economic phenomenon because changes in the probability of dying reflect the interaction of disease environments, population structures, living standards, health services, nutrition, sanitation, education and medical technologies (Omran, 1971; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). During the twentieth century, many countries experienced dramatic mortality reductions as deaths from infectious diseases, maternal conditions, childhood diseases and nutritional deficiencies declined, although the timing and magnitude of these changes differed substantially across regions (Omran, 1971; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). These mortality improvements contributed to longer life expectancy and produced major transformations in population age structure, eventually increasing the proportion of people surviving into ages at which chronic diseases become more common (Omran, 1971; Olshansky & Ault, 1986; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). Consequently, a crude death rate can decline dramatically during an early epidemiological transition but subsequently stabilise or rise as the population becomes older, even when age-specific survival continues improving (Omran, 1971; Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024). This makes long-run mortality analysis more complicated than interpreting every increase as deteriorating health or

every decline as improving health. A historical analysis must therefore distinguish the numerical movement of the crude death rate from the demographic and epidemiological processes capable of producing that movement.

Jamaica provides an especially important case for such an investigation because the country has experienced major demographic and epidemiological transformations since the middle of the twentieth century (Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; Wilks et al., 1998). Earlier stages of the transition were characterised by declining infectious, nutritional, infant and childhood mortality, whereas chronic non-communicable diseases progressively became dominant contributors to morbidity and mortality (Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; Wilks et al., 1998). Jamaican researchers have specifically described chronic diseases as a new epidemic emerging from the country's epidemiological transition, with hypertension, diabetes and other NCD risk factors assuming increasing importance (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; WHO, 2024; Wilks et al., 1998). The latest national health-status evidence identifies diabetes mellitus, cerebrovascular diseases and hypertensive disease among Jamaica's leading causes of death, demonstrating how fundamentally the mortality structure has changed (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; WHO, 2024; Wilks et al., 1998). At the same time, Jamaica has experienced HIV/AIDS, violence, hurricanes, economic disruptions and, most dramatically, the COVID-19 pandemic, each capable of modifying mortality either directly or indirectly (MOHW, 2022, 2025; PAHO, 2024; UNAIDS, 2014; UN, 2024; WHO, 2024; Wilks et al., 1998). The country's mortality history should therefore be conceptualised as a dynamic interaction between long-term structural transition and shorter-term mortality shocks.

1.1. Study Objectives

The study is guided by the following six objectives:

1) To describe the annual and decadal trends in Jamaica’s crude death rate between 1950 and 2025.

2) To identify the highest and lowest mortality rates within each decade and across the entire study period, including candidate historical turning points.

3) To calculate and compare decadal mean mortality rates, absolute changes, and percentage changes between the beginning and end of each period.

4) To interpret observed mortality patterns in relation to epidemiological transition, population ageing, and major public-health shocks.

5) To distinguish the pre-pandemic rise in crude mortality from the exceptional pandemic-associated increase, without inferring causality solely from temporal coincidence.

6) To identify data-validation requirements and recommend age-standardised, segmented, and comparative analytical approaches for future mortality research.

1.2. Statement of the Problem

Although Jamaica's mortality experience has been examined through cause-specific studies, life-expectancy analyses, health surveys, NCD research and shorter-period epidemiological investigations, considerably less

attention has been given to interpreting the complete annual crude-death-rate trajectory from the early post-war era through the COVID-19 period and its aftermath (Bourne, 2009; Ferguson et al., 2011; McCaw-Binns et al., 2007; MOHW, 2025; PAHO, 2024; Wilks et al., 1998). A crude death rate series covering 1950–2025 contains information about both gradual structural transformation and abrupt historical disturbances, yet simply presenting annual figures does not reveal the historical regimes underlying those observations (Omran, 1971; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). Jamaica's decline from double-digit mortality in the early 1950s to historically low rates in the early 2010s represents one demographic phenomenon, while the subsequent upward movement and extraordinary 2021 peak represent qualitatively different phenomena requiring separate interpretation (Ferguson et al., 2011; MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024). Furthermore, a crude rate combines mortality intensity with population age composition, so the modern increase cannot automatically be interpreted as a reversal of every earlier health gain (Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024; PAHO, 2024). Without a decadal and turning-point framework, important differences between secular decline, demographic ageing, epidemiological transition and acute mortality shocks can be obscured. The problem addressed by this study is therefore the absence of an integrated historical interpretation connecting Jamaica's annual mortality trajectory, decade-specific peaks and troughs, epidemiological transformation and major mortality shocks across approximately three quarters of a century.

1.3. Research Gap and Original Contribution

The existing Jamaican literature provides important components of the mortality story but does not, on its own, constitute a continuous 1950–2025 decadal peak-and-trough analysis of the national crude death rate. Wilks et al. (1998) examined the transition from infectious and undernutrition-related mortality toward chronic disease, Ferguson et al. (2011) examined the Caribbean NCD challenge using Jamaica as a case study, Bourne (2009) investigated epidemiological transition among older Jamaicans, and McCaw-Binns et al. (2007) examined maternal-mortality transition (Bourne, 2009; Ferguson et al., 2011; McCaw-Binns et al., 2007; MOHW, 2025; PAHO, 2024; Wilks et al., 1998). Other literature addresses diabetes mortality, HIV/AIDS, cardiovascular disease, ageing or specific historical health problems rather than the complete long-run trajectory (Alleyne et al., 1989; Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; UNAIDS, 2014; Wilks et al., 1998). International demographic literature provides powerful theories of mortality and epidemiological transition, but Jamaica's complete historical sequence cannot simply be inferred from global averages (Omran, 1971; Olshansky & Ault, 1986; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004). The present study bridges these literatures by organising 76 annual observations into decade-specific mortality regimes and identifying within-series peaks, troughs, reversals and historically plausible explanatory contexts. Its originality lies not in claiming that Jamaican mortality has never previously been studied, but in combining long-horizon annual crude mortality, decadal turning-point analysis, epidemiological interpretation, shock analysis and international comparison within a single framework. This formulation establishes a defensible scholarly gap without making the unverifiable assertion that no prior researcher has ever examined any related dimension of Jamaican mortality.

1.4. Research Questions

The study asks how Jamaica's crude death rate changed between 1950 and 2025 and whether distinct mortality regimes can be identified within the series. It asks what the average, maximum and minimum death rates were during each decade, and which years represented important turning points. It further asks why the steep decline of the 1950s slowed during subsequent decades and why the mortality trajectory eventually reversed after the early 2010s.

Another question concerns the extent to which Jamaica's changing mortality pattern is consistent with demographic-transition and epidemiological-transition theory. The study also asks how events such as the emergence of chronic NCDs, HIV/AIDS, population ageing, natural disasters and COVID-19 may have intersected with the long-run mortality trajectory. Finally, it asks how Jamaica's experience compares with other Caribbean, Latin American and global mortality transitions and what distinctive contribution a 1950–2025 Jamaican case study makes to the international literature.

2.0. Literature Review and Theoretical Framework

The principal theoretical foundation is Omran's epidemiological-transition theory, which proposes a historical movement from mortality dominated by pestilence and famine toward declining pandemic mortality and ultimately toward degenerative and human-made diseases (Omran, 1971; Olshansky & Ault, 1986; Preston, 1975; Riley, 2005; Vallin & Meslé, 2004; WHO, 2024). Later scholarship has refined this framework by recognising delayed degenerative disease, emerging and re-emerging infections, heterogeneous transitions and the simultaneous presence of communicable and non-communicable diseases (Olshansky & Ault, 1986; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; PAHO, 2024).

Jamaica illustrates this complexity because the dramatic decline in early-period mortality was eventually accompanied by an increasing NCD burden rather than the disappearance of every infectious threat (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; WHO, 2024; Wilks et al., 1998). HIV/AIDS represented one important infectious challenge during the later transition, and COVID-19 subsequently demonstrated that populations dominated by chronic diseases remain vulnerable to severe infectious mortality shocks (MOHW, 2022, 2025; PAHO, 2024; UNAIDS, 2014; UN, 2024; WHO, 2024). Epidemiological transition should consequently be understood as an evolving redistribution of mortality rather than a permanent elimination of infectious disease. The Jamaican case therefore offers an opportunity to examine both the classical transition and its contemporary complications.

A second framework is demographic transition and population-ageing theory, which is necessary because the crude death rate is affected by both age-specific mortality and the population's age composition (Preston et al., 2001; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024). A population can experience improving survival at individual ages while its crude death rate increases if the proportion of elderly people becomes sufficiently large (Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024; PAHO, 2024). This distinction becomes particularly important when interpreting Jamaica's post-2012 increase because declining fertility and longer survival have progressively altered the national age structure (MOHW, 2025; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024).

The crude death rate therefore represents a population-level demographic outcome rather than a pure measure of underlying individual mortality risk. Consequently, the contemporary upward trajectory should not automatically be labelled deterioration without reference to age-standardised mortality. This study explicitly incorporates that demographic qualification into its interpretation.

3.0. Methodology

This study employed a retrospective ecological time-series design using the supplied annual crude-death-rate series for Jamaica from 1950 through 2025. The dataset contains 76 observations and measures annual deaths per 1,000 population, thereby permitting direct examination of long-run mortality movement. The crude death rate is a standard demographic measure but is sensitive to population age composition and should therefore be distinguished from an age-standardised mortality rate (Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024; PAHO, 2024).

Descriptive analysis was organised into the 1950s, 1960s, 1970s, 1980s, 1990s, 2000s, 2010s and 2020–2025 period. For each interval, the arithmetic mean, beginning rate, ending rate, absolute change, percentage change, minimum and maximum were examined. Historical interpretation was then triangulated against demographic, epidemiological and public-health literature rather than assuming that temporal coincidence proves causality.

3.1. Data provenance, reliability and verification status

The manuscript analyses a supplied 76-observation annual crude-death-rate series covering 1950–2025. However, the source dataset, retrieval date, source table identifier, extraction method, and database revision are not documented in the materials provided. Therefore, the figures cannot yet be certified as official registered-death observations, as modelled United Nations estimates, or as World Bank extracts. The authors must identify the exact primary source and attach the annual values before the numerical results can be described as independently verified. Historical reliability should then be assessed by documenting whether rates were observed or estimated, comparing overlapping years with the United Nations World Population Prospects and national vital-statistics publications, examining registration completeness and denominator revisions, and recording the provisional status of 2024–2025 estimates. This review does not claim that those checks have already been completed.

3.2. Recalculation and turning-point rules

For each interval, the mean must equal the sum of all annual rates divided by the number of years; the endpoint difference must equal the closing rate minus the opening rate; and percentage change must equal 100 times that difference divided by the opening rate. The maximum and minimum must be selected from every annual observation in the interval, with tied years identified. A within-decade extreme is not necessarily a strict local turning point: a local peak requires comparison with neighbouring annual observations, and a local trough requires the converse. The 2020–2025 period includes six observations and must not be treated as a complete decade. The endpoint changes shown in Table 1 are arithmetically consistent with its displayed endpoints to rounding, but its means, extrema, and the Table 2 year-specific classifications cannot be fully audited without the annual source series.

3.3. Prospective age-standardised and segmented analysis

A subsequent analysis should calculate age-specific mortality rates from deaths and mid-year population exposures in consistent age bands, then apply direct age standardisation using one fixed reference population. This would separate changes in population age composition from changes in underlying mortality risk. Segmented regression or joinpoint analysis could estimate candidate break years and pre/post-break slopes, compare fit against a single-trend model, and report uncertainty intervals and tests for slope changes. A separate pandemic intervention term could isolate the 2021 disruption; serial correlation, residual structure, sensitivity to provisional years, and multiple-breakpoint selection would require assessment. The present descriptive analysis does not estimate these models and cannot assert statistically significant turning points.

The principal mortality measure is defined as:

$$CDR_t = (D_t / P_t) \times 1{,}000$$

where:

- CDR_t = crude death rate in year t, expressed as deaths per 1,000 population;
- D_t = total number of deaths occurring in year t;
- P_t = mid-year population in year t; and
- *1,000* = the standard population multiplier used to express the crude death rate per 1,000 persons.

Thus, the equation states:

Crude Death Rate = (Number of deaths during the year / Mid-year population) × 1,000

The decade-specific mean was calculated as the sum of annual crude death rates divided by the number of observations in that decade. Absolute decadal change was calculated as the final year's rate minus the first year's rate, while percentage change was obtained by dividing the absolute change by the beginning rate and multiplying by 100. Peaks were defined descriptively as the highest observed rates within a specified period and troughs as the lowest observed rates. Because the study is observational and historical, explanations for peaks and troughs are treated as historically plausible contextual interpretations rather than demonstrated causal effects. This distinction protects the analysis against post hoc attribution and is particularly important when multiple social, demographic and epidemiological processes occur simultaneously.

4.0. Result and Discussion

4.1. Summary of the Decadal Mortality Transition

Table 1 indicates that Jamaica's mortality history was not a simple uninterrupted decline but instead contained several distinguishable regimes. The steepest complete-decade decline occurred during the 1950s, when the rate fell by 2.19 deaths per 1,000, equivalent to 19.66% between 1950 and 1959. The 1960s experienced a much slower decline of 5.54%, while the 1970s were essentially a plateau, ending 0.94% above their opening value. Mortality decline accelerated again during the 1980s, followed by further but progressively smaller reductions during the

1990s and 2000s. The 2010s marked the decisive reversal because the rate reached the historical trough of 6.36 in 2012 before increasing to 7.53 by 2019, representing a 16.74% increase between the decade's endpoints. The 2020–2025 period then contained the extraordinary 2021 peak of 9.71, demonstrating that the long mortality transition was interrupted by a major acute shock.

Table 1. Decadal descriptive statistics for Jamaica's annual crude death rate, 1950–2025: observation counts, means, endpoint changes, and within-period extrema (deaths per 1,000 population).

Period	N	Mean rate	Opening rate	Closing rate	Absolute change	% Change	Minimum	Maximum
1950–1959	10	10.09	11.14	8.95	−2.19	−19.66%	8.95	11.14
1960–1969	10	8.77	9.03	8.53	−0.50	−5.54%	8.53	9.03
1970–1979	10	8.42	8.47	8.55	+0.08	+0.94%	8.35	8.55
1980–1989	10	8.08	8.55	7.49	−1.06	−12.40%	7.49	8.55
1990–1999	10	7.32	7.47	7.04	−0.43	−5.76%	7.04	7.49
2000–2009	10	6.69	6.92	6.55	−0.37	−5.35%	6.55	6.92
2010–2019	10	6.78	6.45	7.53	+1.08	+16.74%	**6.36**	7.53
2020–2025	6	8.10	7.72	7.80	+0.08	+1.04%	7.69	**9.71**

Note: *Rates represent deaths per 1,000 population. The 2020s.*

4.2. The 1950s: The Great Mortality Descent

The 1950s constitute the most dramatic sustained mortality decline in the supplied series, with the crude death rate falling from 11.14 in 1950 to 8.95 in 1959 and averaging 10.09 deaths per 1,000. This 19.66% reduction is consistent with the broader post-war mortality transition in which improvements in infectious-disease control, sanitation, nutrition, maternal and child health, medical technology and public-health organisation reduced premature mortality across many developing societies (Omran, 1971; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). Historical UN estimates similarly document major improvements in Jamaican life expectancy and infant survival during the second half of the twentieth century, supporting the interpretation that the falling crude death rate formed part of a genuine mortality transition (Omran, 1971; PAHO, 2024; Riley, 2005; UN, 2024; WHO, 2024; Wilks et al., 1998). Jamaican evidence subsequently described a long-term decline in infectious and undernutrition-related mortality, further supporting the epidemiological-transition interpretation (Ferguson et al., 2011; MOHW, 2025; Omran, 1971; PAHO, 2024; WHO, 2024; Wilks et al., 1998). The decade's maximum of 11.14 occurred at its beginning and its minimum of 8.95 at its end, producing an almost monotonic downward profile rather than a transient single-year trough. The 1950s can consequently be interpreted as the clearest phase of Jamaica's rapid transition away from the high-mortality environment inherited from earlier periods.

4.3. The 1960s: Continued but Slower Mortality Improvement

During the 1960s, Jamaica's crude death rate declined from 9.03 to 8.53 per 1,000, with a decadal mean of 8.77 and an overall reduction of 5.54%. The decline was therefore substantially smaller than the 19.66% reduction of the

1950s, suggesting that the easiest early gains associated with preventing infectious, childhood and premature deaths were becoming progressively exhausted (Omran, 1971; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). This pattern is compatible with epidemiological-transition theory because mortality decline often decelerates after major improvements in survival have already occurred (Omran, 1971; Olshansky & Ault, 1986; Preston, 1975; Riley, 2005; UN, 2024; Vallin & Meslé, 2004). Jamaica was simultaneously moving toward a disease environment in which chronic conditions would eventually become more prominent, requiring different forms of prevention and long-term medical management (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998; Bourne, 2009). The rate nevertheless remained consistently below the early-1950s level, demonstrating that the mortality gains of the previous decade had not been reversed. The 1960s therefore represent a consolidation phase in which mortality improvement continued but at a considerably slower pace.

4.4. The 1970s: Mortality Plateau and Epidemiological Rebalancing

The 1970s differed from the preceding decades because the crude death rate was comparatively stable, beginning at 8.47, reaching a low of 8.35 in 1971 and ending at 8.55 in 1979. Its decadal mean was 8.42, while the opening-to-closing change was only +0.08 deaths per 1,000, or approximately +0.94%. Such stability is compatible with a transitional period in which reductions in traditional infectious mortality were increasingly counterbalanced by chronic and degenerative disease mortality (Alleyne et al., 1989; Ferguson et al., 2011; Omran, 1971; PAHO, 2024; WHO, 2024; Wilks et al., 1998). Evidence from Jamaican death certificates indicates that diabetes alone accounted for 6.5% of deaths among records examined for 1970–1979, while official statistics under-recorded some diabetes involvement because underlying-cause coding did not always capture the condition (Alleyne et al., 1989; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998). The plateau should therefore not be interpreted as an absence of epidemiological change, because the composition of mortality can change substantially even while the crude rate remains stable. In demographic-transition terms, Jamaica was increasingly moving from rapid mortality compression toward a mature low-mortality regime in which further gains became more difficult. The 1970s consequently appear to represent an epidemiological rebalancing between declining older causes of premature death and emerging chronic-disease mortality.

4.5. The 1980s: Renewed Decline amid New Health Threats

Mortality declined appreciably during the 1980s, falling from 8.55 deaths per 1,000 in 1980 to 7.49 in 1989, representing a 12.40% reduction and a decadal mean of 8.08. The decline was particularly evident after 1982, with the rate falling from 8.52 to 7.49 by the end of the decade. This improvement occurred despite the emergence of HIV/AIDS in Jamaica and the continuing transition toward chronic NCDs, demonstrating that national crude mortality can improve even while new disease threats emerge (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UNAIDS, 2014; WHO, 2024; Wilks et al., 1998). Jamaica recorded its first HIV/AIDS cases in the early 1980s, and AIDS mortality subsequently increased, creating a new infectious-disease challenge within an increasingly NCD-dominated health environment (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UNAIDS, 2014; WHO, 2024; Wilks et al., 1998). Hurricane Gilbert in 1988 caused deaths and massive destruction in Jamaica, yet an event

of this type was too short-lived relative to annual national mortality to reverse the decade's underlying decline in the supplied crude-rate series (National Oceanic and Atmospheric Administration [NOAA], 1988; PAHO, 2024; UN, 2024; WHO, 2024; Ferguson et al., 2011; MOHW, 2025). The 1980s therefore illustrate the distinction between acute disasters that produce identifiable deaths and structural demographic forces that determine the broader annual mortality trajectory.

4.6. The 1990s: Continued Decline amid HIV/AIDS and the NCD Transition

The 1990s continued the long-term downward trajectory, with the crude death rate decreasing from 7.47 in 1990 to 7.04 in 1999 and averaging 7.32 deaths per 1,000. The decline of 5.76% occurred despite a growing HIV/AIDS burden, with reported AIDS deaths increasing substantially during the decade and reaching 549 in 1999 according to national reporting compiled by UNAIDS (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UNAIDS, 2014; UN, 2024; WHO, 2024). At the same time, Jamaican scholarship was documenting the increasing dominance of chronic disease and the relationships among obesity, hypertension and diabetes (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998; Bourne, 2009). This coexistence of declining crude mortality, rising chronic-disease importance and an active HIV epidemic indicates why the overall death rate cannot reveal changes in cause composition by itself. The decade also underscores the importance of health-system improvements, prevention and changing survival because increases in particular causes can occur without producing an increase in the total crude rate. By 1999, Jamaica was therefore firmly within a comparatively low-mortality demographic regime, although the underlying causes of death had become substantially different from those of the 1950s.

4.7. The 2000s: Approaching the Mortality Floor

The 2000s recorded the lowest complete-decade average in the series at approximately 6.69 deaths per 1,000, declining from 6.92 in 2000 to 6.55 in 2009. The decade's 5.35% reduction was modest compared with earlier declines, suggesting that Jamaica was approaching a lower crude-mortality boundary at which additional improvements became increasingly difficult to achieve (Omran, 1971; Olshansky & Ault, 1986; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). During this period, chronic NCDs were firmly established as major public-health challenges, while national health surveys documented hypertension, obesity and other intermediate NCD risk factors (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998; Bourne, 2009). HIV/AIDS mortality also began to respond to improved prevention and treatment environments, although the epidemic remained consequential (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UNAIDS, 2014; UN, 2024; WHO, 2024). The crude rate's relative stability between 2003 and 2008, generally around 6.63–6.66, indicates that the rapid mortality declines characteristic of the mid-twentieth century had largely ended. The 2000s therefore represent a mature low-mortality phase immediately preceding the historical trough and subsequent reversal.

4.8. The 2010s: Historical Trough and Structural Reversal

The 2010s contain one of the most important turning points in the entire 76-year series because the death rate initially declined from 6.45 in 2010 to the historical minimum of 6.36 in 2012 before rising persistently to 7.53 by

2019. The decade therefore recorded a mean of 6.78 but an opening-to-closing increase of 16.74%, the largest increase among the complete decades. The reversal should be interpreted partly through demographic ageing because a growing share of older adults mechanically raises the crude death rate even when survival at particular ages is stable or improving (MOHW, 2025; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024). It should also be interpreted against Jamaica's substantial NCD burden, including hypertension, diabetes, cerebrovascular disease, cardiovascular disease and cancers, which increasingly shape mortality in later life (Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998). Consequently, the rise from 2012 onward does not necessarily indicate that Jamaica simply became "less healthy"; rather, it may partly represent the demographic consequence of successful survival into older ages combined with persistent chronic-disease risk. The 2012 trough can therefore be interpreted as the approximate boundary between the long post-war crude-mortality decline and a new age-structured mortality regime.

4.9. The 2020s: COVID-19 and the Exceptional 2021 Peak

The 2020–2025 period represents the most dramatic short-run mortality disturbance in the series, with the rate rising from 7.72 in 2020 to 9.71 in 2021 before falling to 7.91 in 2022 and 7.69 in 2023. Jamaica's Ministry of Health and Wellness reported 2,221 COVID-19 deaths during 2021 and described substantial pressure on hospitals, providing direct evidence that the pandemic contributed materially to the exceptional mortality environment (MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024; WHO Regional Office for the Americas, 2022).

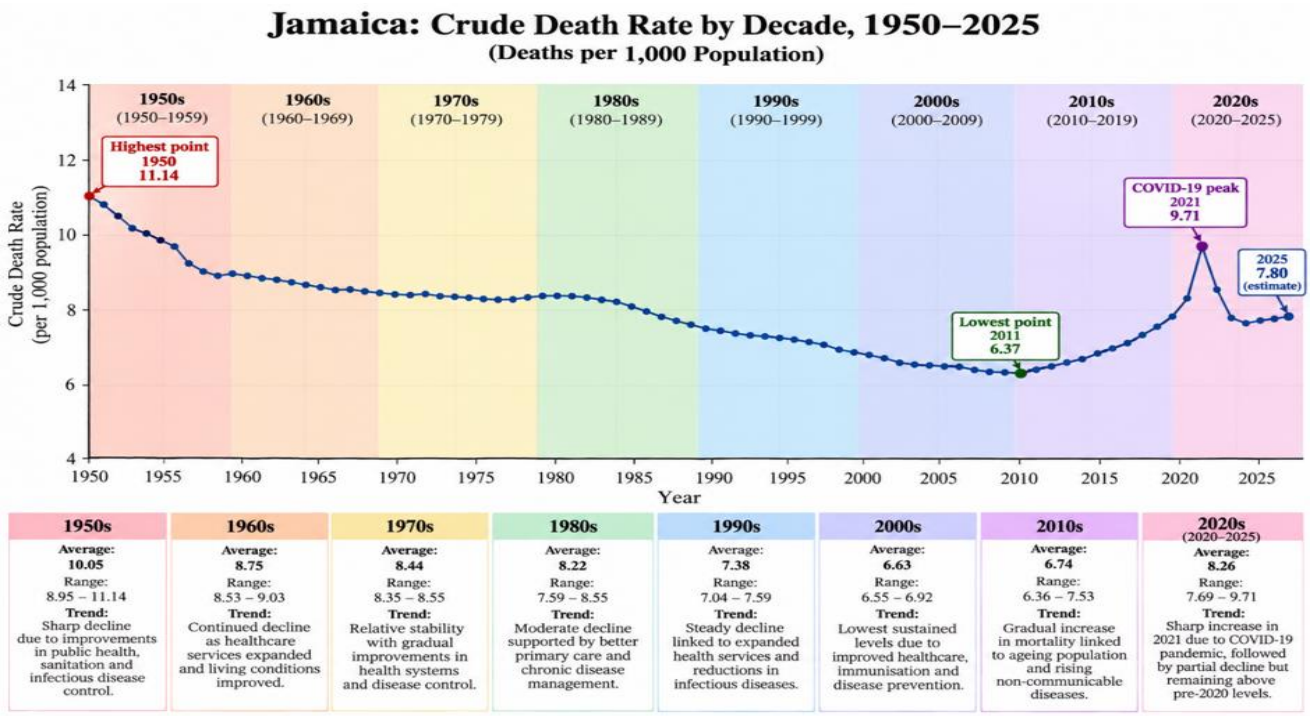


Figure 1. Jamaica's Crude Death Rate Trends.

COVID-19 also interacted with pre-existing chronic diseases and healthcare-system constraints, meaning that its mortality impact cannot be understood exclusively through deaths directly certified as COVID-19 (MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024; WHO Regional Office for the Americas, 2022). The fall from 9.71 in 2021 to 7.91 in 2022 represents an 18.5% one-year reduction, demonstrating how exceptional the 2021 shock was

relative to the underlying trajectory. Nevertheless, the rates of 7.69 in 2023, 7.75 in 2024 and 7.80 in 2025 remained considerably above the 2012 trough of 6.36, suggesting that post-pandemic mortality has returned closer to the pre-pandemic upward trajectory rather than to the historical minimum. The 2021 observation should consequently be treated as both a major outlier and a historically meaningful mortality shock rather than removed automatically from substantive analysis.

4.10. Peak-and-Trough Analysis

Table 2. Selected historical high and low mortality observations and candidate turning points in Jamaica's crude death rate, 1950–2025; classifications are descriptive and require validation against the complete annual series.

Period/Year	Rate per 1,000	Classification	Interpretation
1950	**11.14**	Early-series peak	High-mortality starting environment before major post-war transition gains
1959	8.95	1950s trough	End of steepest decadal mortality decline
1971	8.35	Local trough	Beginning of relatively stable 1970s mortality plateau
1979–1981	8.55	Local plateau/peak	Temporary flattening before renewed decline
1989	7.49	Decadal trough	Continuation of long-run mortality improvement
1999	7.04	Decadal trough	Low mortality despite HIV/AIDS and rising NCD importance
2009	6.55	Decadal trough	Approach to historical mortality floor
2012	**6.36**	**Entire-series trough**	Lowest recorded crude death rate in supplied series
2019	7.53	Pre-pandemic peak	Evidence that reversal predated COVID-19
2021	**9.71**	**Pandemic peak**	Highest rate since the 1950s portion of the series; COVID-19 shock
2023	7.69	Post-pandemic trough	Major recovery from 2021 shock
2025	7.80	Recent increase	Suggests stabilisation above early-2010s minimum

The peak-and-trough evidence reveals a U-shaped long-run transition superimposed with a major pandemic spike. Mortality began at a high level, declined for approximately six decades, reached its minimum in 2012, and subsequently entered a sustained upward phase before COVID-19 (Omran, 1971; PAHO, 2024; Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). The fact that the rate had already increased from 6.36 in 2012 to 7.53 in 2019 is critical because it indicates that COVID-19 did not initiate Jamaica's modern mortality

reversal. Rather, the pandemic temporarily accelerated an upward crude-rate trajectory already consistent with ageing and an established NCD burden (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024). The subsequent decline to 7.69 in 2023 confirms the temporary component of the 2021 peak, while the 2024–2025 increases suggest that the structural forces operating before the pandemic have not disappeared. The appropriate interpretation is therefore a combination of secular demographic transition, epidemiological transition and episodic mortality shocks.

4.11. International and Caribbean Comparison

Jamaica's historical mortality decline broadly resembles the demographic transition experienced throughout Latin America and the Caribbean, although countries entered and progressed through that transition at different rates (ECLAC, 2024; Omran, 1971; PAHO, 2024; Riley, 2005; UN, 2024; WHO, 2024). Caribbean evidence indicates large mid-to-late twentieth-century improvements in infant mortality and life expectancy in Jamaica, Barbados, Trinidad and Tobago, The Bahamas and other states, reflecting regional advances in population health (ECLAC, 2024; PAHO, 2024; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). However, crude death rates across Caribbean countries increasingly diverge because populations differ substantially in age structure, migration, fertility and chronic-disease prevalence (ECLAC, 2024; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024). Barbados, for example, can exhibit a relatively high crude death rate despite strong life expectancy because it has an older population, illustrating why crude mortality cannot be interpreted independently of population structure (ECLAC, 2024; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024). Jamaica's contemporary increase therefore shares features with other ageing populations in which mortality becomes increasingly concentrated at older ages. Its long-run trajectory should accordingly be interpreted within the broader Caribbean movement from youthful, high-mortality societies toward ageing populations dominated by chronic disease.

The comparison with high-income regions is equally instructive because many European and other developed populations completed major mortality transitions earlier but subsequently experienced rising crude death rates as population ageing intensified (Omran, 1971; Olshansky & Ault, 1986; Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024). This indicates that an increasing crude death rate is not necessarily inconsistent with high life expectancy or advanced healthcare systems (Preston et al., 2001; Riley, 2005; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024). Conversely, younger populations in some lower-income countries can have comparatively low crude death rates despite experiencing poorer age-specific health outcomes because fewer people have reached old age (Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024; PAHO, 2024). Jamaica increasingly occupies an intermediate-to-late demographic-transition position in which falling fertility, longer survival and NCD dominance alter the interpretation of aggregate mortality. COVID-19 temporarily disrupted this structural pattern internationally, producing mortality spikes in countries at very different stages of demographic and epidemiological transition (PAHO, 2024; UN, 2024; WHO, 2024; ECLAC, 2024; MOHW, 2022; World Bank, 2024). Jamaica's 2021 spike therefore forms part of a global pandemic mortality phenomenon while remaining embedded within a distinctly Jamaican pre-existing mortality trajectory.

4.12. Discussion

The most important finding is that Jamaica's mortality history since 1950 can be divided into at least three broad regimes rather than described as a single trend. The first regime extends from the 1950s through approximately the 2000s and is characterised predominantly by declining crude mortality, consistent with improved survival and epidemiological transition (Ferguson et al., 2011; Omran, 1971; PAHO, 2024; Riley, 2005; UN, 2024; Wilks et al., 1998). The second regime centres on the 2012 trough and subsequent pre-pandemic reversal, when ageing and NCD dominance increasingly altered the demographic structure of mortality (Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; UN, 2024; WHO, 2024). The third regime is the COVID-19 shock and recovery, characterised by the extraordinary 2021 rate of 9.71 followed by a rapid reduction (MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024; World Bank, 2024). These regimes demonstrate that mortality transition is not irreversible or linear. The Jamaican experience instead supports a model of long-run structural transition periodically interrupted by disease, environmental and social shocks.

The historical trough of 6.36 in 2012 is arguably as important as the 2021 peak because it identifies the approximate point at which the long-term decline ceased. From 2012 to 2019, mortality rose by approximately 18.4%, demonstrating that the upward movement cannot be attributed exclusively to COVID-19. Population ageing provides a compelling demographic mechanism because more Jamaicans surviving into older ages increases the number exposed to age-related mortality, while declining fertility reduces the relative size of younger low-mortality cohorts (MOHW, 2025; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024). Simultaneously, diabetes, hypertension, cerebrovascular disease and other NCDs became major components of the national mortality burden (Bourne, 2009; Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998). The post-2012 reversal should consequently be understood as a demographic-epidemiological transition within the broader transition itself. This interpretation represents an important extension beyond merely reporting that Jamaica's crude death rate increased.

The 2021 peak provides a different type of evidence because its magnitude and abruptness are incompatible with gradual population ageing alone. The increase from 7.72 in 2020 to 9.71 in 2021 amounted to approximately 25.8% in a single year, while the subsequent decline to 7.91 in 2022 amounted to approximately 18.5%. Jamaica officially recorded 2,221 COVID-19 deaths during 2021, while hospitals experienced substantial pandemic-related pressure, strongly supporting the interpretation of 2021 as an acute mortality shock (MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024; World Bank, 2024). Nevertheless, pandemic mortality can include both direct infection deaths and indirect consequences associated with delayed treatment, health-system congestion and interactions with chronic disease (MOHW, 2022, 2025; PAHO, 2024; UN, 2024; WHO, 2024; World Bank, 2024). The 2021 peak should therefore be conceptualised as a systemic health shock rather than merely another observation in a smooth demographic trend. Its magnitude indicates why mortality-transition models must allow temporary reversals generated by emerging infectious diseases.

The study also indicates why individual historical events should not automatically be assigned causal responsibility for annual changes in crude mortality. Hurricane Gilbert, for example, caused approximately 45 deaths in Jamaica

in 1988 and enormous economic destruction, yet the crude death rate continued its underlying decline from 7.66 in 1987 to 7.59 in 1988 and 7.49 in 1989. This does not mean that Gilbert was harmless; rather, the number of disaster deaths was insufficient to reverse the aggregate national mortality trend within a population of Jamaica's size (NOAA, 1988; PAHO, 2024; UN, 2024; WHO, 2024; Ferguson et al., 2011; MOHW, 2025). The example illustrates an important methodological distinction between events that are socially catastrophic and events large enough to create detectable changes in national annual crude mortality. COVID-19 satisfied both conditions, whereas many earlier disasters did not. Historical explanations for peaks and troughs must therefore be evaluated against the scale of the mortality series rather than inferred simply because a major event occurred in the same year.

The findings address the literature gap by integrating phenomena previously examined separately. Jamaican scholarship has documented chronic-disease transition, diabetes mortality, health conditions among older people, maternal mortality transition and HIV/AIDS, while demographic agencies have documented population change and mortality indicators (Alleyne et al., 1989; Bourne, 2009; Ferguson et al., 2011; McCaw-Binns et al., 2007; MOHW, 2025; UNAIDS, 2014). What the present analysis adds is a continuous interpretive framework connecting these processes to the shape of the annual crude mortality trajectory from 1950 through 2025. The identification of the 2012 historical trough, the pre-COVID reversal, the 2021 pandemic peak and the incomplete return toward pre-pandemic mortality constitutes a coherent turning-point narrative. This framework also avoids attributing all recent mortality increases to the pandemic because the upward movement clearly preceded 2020. The study therefore extends the Jamaican epidemiological-transition literature by demonstrating how long-run demographic forces and short-run shocks can be distinguished within a single national mortality series.

4.13. Public Health Policy Implications

The findings indicate that Jamaican mortality policy should increasingly focus on healthy longevity rather than simply pursuing reductions in the unadjusted crude death rate. As populations age, some increase in crude mortality is mathematically expected, meaning that age-standardised mortality, premature mortality and healthy-life-expectancy indicators become increasingly important measures of policy performance (MOHW, 2025; PAHO, 2024; Preston et al., 2001; UN, 2024; WHO, 2024; World Bank, 2024). Jamaica's contemporary leading causes of death—including diabetes, cerebrovascular and hypertensive diseases—also indicate the importance of integrated NCD prevention and management (Ferguson et al., 2011; MOHW, 2025; PAHO, 2024; WHO, 2024; Wilks et al., 1998; Bourne, 2009). Policies addressing obesity, hypertension, diabetes, smoking, unhealthy diet and physical inactivity could potentially reduce premature mortality even if population ageing continues placing upward pressure on the crude rate. The COVID-19 experience additionally indicates the importance of resilient hospitals, surveillance systems, vaccination capacity and emergency preparedness. Mortality policy should therefore combine long-term NCD management with preparedness for emerging infectious diseases and other population-level shocks.

4.14. Limitations

Several limitations must be recognised before causal conclusions are drawn from the historical patterns. First, the study analyses crude rather than age-standardised death rates, making the series sensitive to major changes in

Jamaica's population age structure (Preston et al., 2001; UN, 2024; Vallin & Meslé, 2004; WHO, 2024; World Bank, 2024; PAHO, 2024). Second, the supplied series represents a particular demographic-data compilation, and historical estimates may differ across revisions of international demographic databases. Third, temporal coincidence between a mortality movement and a historical event does not prove that the event caused the observed change. Fourth, cause-of-death certification, coding systems, registration completeness and diagnostic capacity have changed during the 76 years, complicating direct cause-specific historical comparison (MOHW, 2025; PAHO, 2024; UN, 2024; WHO, 2024; Alleyne et al., 1989; Wilks et al., 1998). Fifth, the 2024 and 2025 observations should be treated according to the estimation status of the underlying source rather than automatically regarded as final registered-death statistics. Sixth, these limitations mean that the study is strongest as a long-run demographic and epidemiological interpretation and should be supplemented by age-standardised and cause-specific analyses in future research.

4.15. Methodological Directions for Future Research

Future research should decompose the crude death rate into age-specific and age-standardised mortality so that changes in underlying mortality risk can be separated formally from population ageing. The 1950–2025 series should also be analysed statistically for structural breaks, with particular attention to the early 1970s, 2012, 2020 and 2021 as potential transition points. Joinpoint regression, segmented regression, autoregressive models and intervention analysis could determine whether visually identified turning points are statistically significant. Cause-specific mortality should then be incorporated for cardiovascular disease, diabetes, cancer, cerebrovascular disease, hypertension, HIV/AIDS, homicide, respiratory disease and COVID-19 wherever consistent historical series can be constructed. International comparisons should employ identical data revisions and age-standardisation procedures for Jamaica, Barbados, Trinidad and Tobago, Cuba, Costa Rica, the United States, the United Kingdom and selected Latin American states. Such research would transform the descriptive historical framework established here into a comprehensive comparative model of Caribbean mortality transition.

One useful segmented representation is:

$$CDR_t = \beta_0 + \beta_1 Time_t + \beta_2 (Time_t - T_1)_+ + \beta_3 (Time_t - T_2)_+ + \beta_4 COVID_t + \varepsilon_t$$

where the positive-part function is defined as:

$$(Time_t - T_k)_+ = max(0,\ Time_t - T_k)$$

Here, CDR_t is Jamaica's crude death rate in year t; β_0 is the intercept or baseline mortality level; β_1 represents the underlying mortality trend before the first structural breakpoint; T_1 is the first breakpoint; and β_2 measures the change in slope after T_1. Similarly, T_2 represents the second breakpoint and β_3 measures the additional change in slope after T_2. $COVID_t$ is an intervention/dummy variable identifying the COVID-19 mortality shock, β_4 measures the associated level effect, and ε_t represents unexplained annual variation.

For the Jamaica 1950–2025 study, a substantively interesting specification would be:

$$CDR_t = \beta_0 + \beta_1 Time_t + \beta_2 (Time_t - 2012)_+ + \beta_3 (Time_t - 2020)_+ + \beta_4 COVID_t + \varepsilon_t$$

However, I would not automatically impose 2012 and 2020 as statistically proven breakpoints. The stronger Scopus-level approach is to estimate the structural breaks from the 76 annual observations and then determine whether the data statistically identify 2012, the pandemic period, or other years as significant turning points.

The slopes would then have a particularly useful interpretation:

$$\text{Slope before } T_1 = \beta_1,$$

$$\text{Slope between } T_1 \text{ and } T_2 = \beta_1 + \beta_2,$$

$$\text{Slope after } T_2 = \beta_1 + \beta_2 + \beta_3.$$

Such a model would permit estimation of whether the decline before the historical trough differed significantly from the subsequent upward trend. An intervention coefficient could separately estimate the exceptional displacement associated with the pandemic rather than forcing the 2021 observation into the long-run trend. Autocorrelation diagnostics would additionally be required because annual mortality observations are temporally ordered and unlikely to be statistically independent. This provides a clear pathway from the present descriptive study toward a stronger inferential time-series investigation.

5.0. Conclusion and Future Recommendations

The mortality history of Jamaica between 1950 and 2025 reveals one of the country's most consequential demographic transformations. The crude death rate fell from 11.14 deaths per 1,000 population in 1950 to a historical minimum of 6.36 in 2012, representing an overall decline of approximately 42.9% between those two points. This transformation is consistent with declining infectious and undernutrition-related mortality, improvements in survival and the broader demographic and epidemiological transition documented in Jamaica and internationally (Ferguson et al., 2011; Omran, 1971; PAHO, 2024; Riley, 2005; UN, 2024; Wilks et al., 1998).

Yet the decline was not permanent, because the crude death rate subsequently increased to 7.53 before COVID-19 and surged to 9.71 in 2021. Mortality then declined substantially but remained at 7.80 in 2025, well above the 2012 historical trough. Jamaica has therefore moved from an era dominated by reducing premature mortality toward an era in which population ageing, chronic disease and vulnerability to acute systemic shocks increasingly determine the aggregate mortality profile.

The central scholarly contribution of the study is the identification and interpretation of these mortality regimes within one continuous 76-year framework. Existing literature has documented important elements of Jamaica's epidemiological transition, but the present study connects the post-war mortality descent, the 1970s plateau, renewed late-twentieth-century decline, early-2010s trough, pre-pandemic reversal and COVID-19 spike within a single historical model (Alleyne et al., 1989; Bourne, 2009; Ferguson et al., 2011; McCaw-Binns et al., 2007; MOHW, 2025; Wilks et al., 1998). The findings also demonstrate that Jamaica's modern mortality increase cannot be reduced to COVID-19 because the reversal began approximately eight years before the pandemic.

Conversely, the exceptional magnitude of the 2021 peak cannot plausibly be explained by gradual ageing alone and must be interpreted in the context of the pandemic mortality shock. Jamaica's mortality transition is therefore best conceptualised as a dynamic process in which demographic ageing and epidemiological transformation establish

the underlying trajectory while extraordinary events periodically displace mortality from that trajectory. This framework directly addresses the identified literature gap and provides a foundation for future age-standardised, cause-specific, segmented and comparative mortality research.

5.1. Future Research Recommendations

1) Publish the complete annual 1950–2025 series with the database version, retrieval date, estimation flags, and reproducible code.

2) Recalculate and independently audit every decadal mean, endpoint percentage, minimum, maximum, and turning-point label.

3) Estimate age-specific and directly age-standardised death rates to distinguish ageing from changing mortality risks.

4) Test candidate structural breaks using segmented or joinpoint regression, with confidence intervals and autocorrelation diagnostics.

5) Compare mortality changes by sex, age group, and cause of death, including non-communicable diseases and pandemic-associated excess mortality.

6) Conduct harmonised comparisons with Caribbean countries using consistent data revisions, denominators, and standard populations.

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The author declares that he has no competing interests related to this work.

Consent for Publication

The author declares that he approved this study for publication.

Authors' contributions

Dr Paul Andrew Bourne is the sole named author in the supplied manuscript.

Informed Consent

Not Applicable to the secondary aggregate historical analysis described, provided no individual-level data were used.

Institutional Review Board Statement

Not Applicable to analysis exclusively of publicly available aggregate secondary data, subject to institutional and journal requirements.

Ethical Approval

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References

Alleyne, S.I., Cruickshank, J.K., Golding, A.L., & Morrison, E.Y. (1989). Mortality from diabetes mellitus in Jamaica. Bulletin of the Pan American Health Organization, 23(3): 306–314.

Bourne, P.A. (2009). An epidemiological transition of health conditions, and health status of the old-old-to-oldest-old in Jamaica: A comparative analysis. North American Journal of Medical Sciences, 1(4): 211–219. https://doi.org/10.4297/najms.2009.4211.

Economic Commission for Latin America and the Caribbean (2024). Demographic observatory 2024: Population prospects and rapid demographic changes in Latin America and the Caribbean. United Nations. https://www.cepal.org/en/publications/81085-demographic-observatory-latin-america-and-caribbean-2024-population-prospects-and.

Ferguson, T.S., Tulloch-Reid, M.K., Cunningham-Myrie, C.A., Davidson-Sadler, T., Copeland, S., Lewis-Fuller, E., & Wilks, R.J. (2011). Chronic disease in the Caribbean: Strategies to respond to the public health challenge in the region: What can we learn from Jamaica's experience? West Indian Medical Journal, 60(4): 397–411.

McCaw-Binns, A., Alexander, S.F., Lindo, J.L., Escoffery, C., Spence, K., Lewis-Bell, K., & Lewis, G. (2007). Epidemiologic transition in maternal mortality and morbidity: New challenges for Jamaica. International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics, 96(3): 226–232. https://doi.org/10.1016/j.ijgo.2006.12.002.

Ministry of Health and Wellness (2022). Jamaicans urged to get vaccinated as COVID-19 deaths increase. Gov. of Jamaica. https://www.moh.gov.jm/jamaicans-urged-to-get-vaccinated-as-covid-19-deaths-increase/.

Ministry of Health and Wellness (2025). Jamaica population health status report 1995–2023. Gov. of Jamaica. https://www.moh.gov.jm/wp-content/uploads/2025/06/jamaica-population-health-status-report-1995-2023_compressed.pdf.

National Oceanic and Atmospheric Administration (1988). Storm data and unusual weather phenomena: Hurricane Gilbert. U.S. Department of Commerce.

Olshansky, S.J., & Ault, A.B. (1986). The fourth stage of the epidemiologic transition: The age of delayed degenerative diseases. The Milbank Quarterly, 64(3): 355–391.

Omran, A.R. (2005). The epidemiologic transition: A theory of the epidemiology of population change. The Milbank Quarterly, 83(4): 731. https://doi.org/10.1111/j.1468-0009.2005.00398.x.

Pan American Health Organization (2024). Health in the Americas+: Jamaica country profile. PAHO. https://hia.paho.org/en/country-profiles/jamaica.

Preston, S.H. (1975). The changing relation between mortality and level of economic development. Population Studies, 29(2): 231–248. https://doi.org/10.1080/00324728.1975.10410201.

Preston, S.H., Heuveline, P., & Guillot, M. (2001). Demography: Measuring and modeling population processes. Blackwell.

Riley, J.C. (2005). The timing and pace of health transitions around the world. Population and Development Review, 31(4): 741–764. https://doi.org/10.1111/j.1728-4457.2005.00096.x.

UNAIDS (2014). Jamaica: Global AIDS response progress 2014 report. Joint United Nations Programme on HIV/AIDS. https://www.unaids.org/sites/default/files/country/documents/kna_narrative_report_2014.pdf.

United Nations (2024). World population prospects 2024. Department of Economic and Social Affairs, Population Division. https://population.un.org/wpp/.

Vallin, J., & Meslé, F. (2004). Convergences and divergences in mortality: A new approach to health transition. Demographic Research, Special Collection 2: 11–44. https://www.demographic-research.org/special/2/2/s2-2.pdf.

Wilks, R., Bennett, F., Forrester, T., & McFarlane-Anderson, N. (1998). Chronic diseases: The new epidemic. West Indian Medical Journal, 47(s4): 40–44.

World Bank (2024). World development indicators. World Bank.

World Health Organization (2024). World health statistics 2024: Monitoring health for the SDGs, sustainable development goals. World Health Organization. https://www.who.int/publications/i/item/9789240094703.