

Total Immediate Ancestral Longevity (Tial) Indices Of Six Elite Individuals, Born Between 1819 And 1948

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Abstract

The sum of the ages at death of the six immediate ancestors of an individual (father, mother, paternal grandfather, paternal grandmother, maternal grandfather and maternal grandmother) constitutes the total immediate ancestral longevity (TIAL) index. In this study, I have expanded the empirical data on TIAL validity by calculating the TIAL index and adjusted TIAL score (TIAL index/6) of six elite individuals, born between 1819 and 1948, among whom four were women. Among the six individuals studied, three belong to British royalty (Queen Victoria, Queen Elizabeth II, and King Charles III), and other three were Anne Freud, Geraldine Chaplin, and George W Bush.

The TIAL indices of these six individuals ranged between 395 and 498. While, Geraldine Chaplin has the lowest TIAL index of 395, King Charles III has the highest TIAL index of 498. The adjusted TIAL scores of these six individuals ranged between 65.8 and 83.0 years. Though the merit of TIAL index of Raymond Pearl to calculate the lifespan of an individual deserves recognition, its demerits also deserve equal recognition.

Key words

Anne Freud, genetic endowment, life span, Queen Victoria, Queen, Elizabeth II, Raymond Pearl

Introduction

The concept that the life span of an individual can be easily calculated was proposed by American biostatistician Raymond Pearl (1879-1940), ninety years ago (1, 2). This was based on empirical data he had collected for adult smoking population in USA,

whose longevity was less in comparison to non-smoking population. What Pearl introduced as total immediate ancestral longevity (TIAL) index is ‘the sum of the ages at death of the six immediate ancestors of an individual (father, mother, father’s father, father’s mother, mother’s father, mother’s mother). Pearl had suggested three groups, which vary on the genetic potential for longevity are: (1) the short lived, with TIAL index <350, (2) the intermediate or transitional in life span with TIAL index 350 – 400, and (3) the long lived, with TIAL index >401 (3). When the TIAL index is divided by six, the resulting number tagged as adjusted TIAL score will represent the genetic endowment of an individual (4, 5).

Previously, the TIAL index of the Jeanne Calment, the longest lived individual, was reported by Robine and Allard (6, 7). Following this example, I had published his calculations of adjusted TIAL indices of four elite scientists including Charles Darwin and Albert Einstein. Among the four elite scientists, only one (Irene Curie) was a woman (4). As opposed to commoners like Jeanne Calment who were blessed with long life spans, my focus was in studying the life spans of elites, who had international name recognition. Thus, to expand the empirical data on TIAL index validity, for this study I calculated the TIAL indices and adjusted TIAL scores of six elite individuals, born between 1819 and 1948, among whom four were women.

Method

A convenience sample of six elite individuals were chosen, whose birth and death records are publicly known and recorded in print and digital sources. (Table 1) The dictionary definition for ‘elite’ – ‘a group of people considered to be the best in a particular

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society or category, especially because of their power, talent or wealth' (8) was adapted for this purpose. Among the six chosen, four are women and two are men. Understandably, three among the six studied individuals belong to British royalty (Queen Victoria, Queen Elizabeth II and King Charles III). Other three individuals include George W. Bush - a two-term American president, Anne Freud - a recognized child psychoanalyst (9, 10) and Geraldine Chaplin - a versatile movie actress (11-13).

Table 1: List of Six Elite Individuals¹, born between 1819 and 1948

Elite Individuals (years of birth and death)	sex	Recognized social status
Queen Victoria (1819-1901)	woman	Queen of UK from 1837 to 1901
Anna Freud (1895-1982)	woman	psychoanalyst and daughter of Sigmund Freud (1856-1939); noted for her contributions to child psychology.
Queen Elizabeth II (1926-2022)	woman	Queen of UK from 1952 to 2022
Geraldine Chaplin (b. 1944)*	woman	versatile movie actress and daughter of Charlie Chaplin (1889-1977); noted for contributions to English, Spanish and French movies.
George W. Bush (b. 1946)*	man	President of USA, from Jan 2001 to Jan 2009, and son of George H W. Bush, 41st President of USA from Jan 1989 to Jan 1992.
King Charles III (b. 1948)*	man	King of UK, from 2022.

¹listed in the chronological order of birth

*still alive (as of January 2024)

Results

Table 2 shows the calculated TIAL indices of six elite individuals, born between 1819 and 1948. Premature death of Geraldine Chaplin's paternal grandfather, Charles Chaplin Sr. at the age of 38 due to alcoholism, is the primary reason for lowest TIAL index for

her. Contrastingly, the highest TIAL index for King Charles III benefits due to two facts that his maternal grandmother Elizabeth Bowes-Lyon was a centenarian, and his parents also lived to reach 90s. His father Phillip missed the centenarian status by only two months.

Table 2: TIAL1 indices of six elite individuals, born between 1819 and 1948

Elite Immediate Ancestors		TIAL ¹ index of			
Individual	Relationship ²	names	DOB ² (yr/mo/d)	DOD ² (yr/mo/d)	the individual
Queen Victoria (1819-1901)	F	Princess Victoria	1786.08.17	1861.03.16	411
	M	Prince Edward	1767.11.02	1820.01.23	
	PGF	King George III	1738.06.04	1820.01.29	
	PGM	Charlotte	1744.05.19	1818.11.17	
	MGF	Francis	1750.07.15	1806.12.09	
	MGM	Augusta	1757.01.19	1831.11.16	
Anna Freud (1895-1982)	F	Sigmund Freud	1856.05.06	1939.09.23	481
	M	Martha Bernays	1861.07.26	1951.11.02	
	PGF	Jacob Freud	1815.12.18	1896.10.23	
	PGM	Amalia Nathansohn	1835.08.18	1930.09.12	
	MGF	Berman Bernays	1826.03.12	1879.12.09	
	MGM	Emmeline Philipp	1830.05.13	1910.10.06	
Queen Elizabeth II (1926-2022)	F	King George VI	1895.12.14	1952.02.06	476
	M	Elizabeth Bowes-Lyon	1900.08.04	2002.03.30	
	PGF	King George V	1865.06.03	1936.01.20	
	PGM	Mary(May) of Teck	1867.05.26	1953.03.24	
	MGF	Claude Bowes-Lyon	1855.03.14	1944.11.07	
	MGM	Cecilia Cavendish	1862.09.11	1938.06.23	
Geraldine Chaplin (1944-)	F	Charlie Chaplin	1889.04.16	1977.12.25	395
	M	Oona O'Neill	1925.05.14	1991.09.27	
	PGF	Charles Chaplin Sr.	1863.03.18	1901.05.09	
	PGM	Hannah Hill	1865.08.06	1928.08.28	
	MGF	Eugene O'Neill	1888.10.16	1953.11.27	
	MGM	Agnes Boulton	1893.09.19	1968.11.25	
George W. Bush (1946-)	F	George H.W. Bush	1924.06.12	2018.11.30	483
	M	Barbara Pierce	1925.06.08	2018.04.17	
	PGF	Prescott Bush	1895.05.15	1972.10.08	
	PGM	Dorothy Walker	1901.07.01	1992.11.19	
	MGF	Marvin Pierce	1893.06.17	1969.07.17	
	MGM	Pauline Robinson	1896.04.28	1949.09.23	
King Charles III (1948-)	F	Phillip	1921.06.10	2021.04.09	498
	M	Queen Elizabeth II	1926.04.21	2022.09.08	
	PGF	Prince Andrew	1882.01.21	1944.12.03	
	PGM	Princess Alice	1885.02.25	1969.12.05	
	MGF	King George VI	1895.12.14	1952.02.06	
	MGM	Elizabeth Bowes-Lyon	1900.08.04	2002.03.30	

¹Total Immediate Ancestral Longevity (TIAL) index

²Abbreviations: F, father; M, mother; PGF, paternal grandfather; PGM, paternal grandmother; MGF, maternal grandfather; MGM, maternal grandmother; DOB, date of birth; DOD, date of death.

It should be noted that among the six individuals, only one (Queen Victoria) spent almost all her life in the 19th century: other five individuals lived in the 20th century. Thus, the increased life spans can be directly correlated to the advances in health care and medical treatment received. In addition, as three among the studied sample of six belonged to British royalty, preferential life styles substantiated with less economic burden also could have contributed their share

for higher than average TIAL indices accrued by this sub-set of elites.

A comparison of calculated TIAL indices, calculated adjusted TIAL scores of the six individuals studied and ages of death of three among these is presented in Table 3. For this studied sample, adjusted TIAL scores ranged between 65.8 and 83.0 years. Among the six elite individuals, four had lived beyond their respective adjusted TIAL scores. Of the three deceased women, while Anne Freud had lived 6+ years beyond her adjusted TIAL score of 80.2 years, Queen Victoria and Queen Elizabeth II had lived 13+ years and 17+ years respectively, beyond their adjusted TIAL scores of 68.5 years and 79.3 years. Among the living three individuals, while Geraldine Chaplin had exceeded her adjusted TIAL score (65.8 years) by 14+ years (as of January 2024), George W Bush and King Charles II have to live 3 and 8 years more (as of January 2024), to reach their calculated adjusted TIAL scores of 80.5 years and 83 years respectively (Table 3).

Table 3: Comparison of TIAL index¹, adjusted TIAL score¹ and age at death of three elite individuals

Elite death	DOB ² (yr/mo/d)	DOD ² (yr/mo/d)	TIAL index	Adjusted TIAL score (yr)	Age at (yr)
Queen Victoria	1819.05.24	1901.01.22	411	68.5	81.6
Anne Freud	1895.12.03	1982.10.09	481	80.2	86.8
Queen Elizabeth II	1926.04.21	2022.09.08	476	79.3	96.3
Geraldine Chaplin	1944.07.31	n.a. ³	395	65.8	n.a. ³
George W. Bush	1946.07.06	n.a. ³	483	80.5	n.a. ³
King Charles III	1948.11.14	n.a. ³	498	83.0	n.a. ³

¹Abbreviations: Total immediate ancestral longevity (TIAL) index; adjusted TIAL score, TIAL score/6

²arranged chronologically according to year of birth

³Abbreviations: dob, date of birth; dod, date of death

⁴n.a., not applicable, as the individuals are still living as of January 26, 2024.

Discussion

The merit of TIAL index of Raymond Pearl is an easy calculation of an individual's life span. The demerits also deserve equal recognition. These are, (1) Siblings share the same adjusted TIAL score with each other, but their lifespans vary depending on each individual's life style related health issues and life stress. (2) One has to wait until all six of immediate ancestors to die, for a realistic calculation. For some individuals such as King Charles III and George W Bush in this study sample, this was a long wait, until they reached their seventies.

(3) If any of the one immediate ancestors was adopted into the family, the resulting TIAL index will not be real.

One drawback in the original data collection for TIAL index calculation needs notice. Due to lack of written records keeping in many cultures before 20th century, it is rather inconvenient to locate the dates of birth and death of grandparents (especially, the paternal and maternal grandmothers) of elite individuals. Only the royalty in Europe possess such records, as vindicated in this study. As per royalty in Japan, records are available, but is spotty and complicated due to the then prevailing practice of using concubines or *quasi-polygyny* as termed by Lebra (14), for male child bearing by Emperors preceding Emperor Taisho aka Yoshihito (1879 – 1926). Thus calculating the lifespan of one of the grandparents of Emperor Showa aka Hirohito (1901-1989) and Emperor Heisei aka Akihito (b.1933) becomes problematic. Nevertheless, due to monogamy practiced in the generations of Hirohito and Akihito, the TIAL index of current Emperor Reiwa aka Naruhito (b. 1960) can be calculated in due course.

In this study, I have expanded the empirical data of TIAL index validity with a sample of six elite individuals (Queen Victoria, Anne Freud, Queen Elizabeth II, Geraldine Chaplin, George W Bush and Prince Charles III). Their calculated TIAL scores ranged between 395 and 498, and adjusted TIAL scores ranged between 65.8 and 83.0 years. Though the merit of TIAL index of Raymond Pearl to calculate the lifespan of an individual deserves recognition, its demerits also deserve equal recognition.

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