

Aging Heads of State: The Politics of Dementia and Geriatric Cognitive Disorders

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Keywords

Dementia · Elderly leaders · Gerontopolitics · Mild behavioral impairment · Stroke

Abstract

Background: Increasing life expectancy may explain why more elderly candidates appear to be running for office. This raises general questions regarding the specific risks of old age and frailty in demanding political positions. Therefore, I tried to give important contemporary examples of elderly leaders, study the mean age of leading political figures over the last 3 decades and present historical examples of heads of state with age-associated brain diseases and cognitive deficits. I reviewed the literature on mental illness and politics and analyzed the ages of international political leaders in 1990, 2000, 2010 and 2020. **Summary:** There are several impressive contemporary examples of elderly politicians. The mean age of political leaders has not increased significantly in most parts of the world over the last 3 decades with the exception of the Gulf States and sub-Saharan Africa. Health problems of heads of state in earlier centuries had not been primarily age associated. After 1900, dementia but also mild cognitive and mild behavioral impairment became important issues in politically critical situations, for example international peace negotiations, the rise of Nazi Germany, the

breakup of communism, the Arab Spring and others. **Key Messages:** This paper collects anecdotal evidence of cognitive frailty in ageing politicians; it is not an in-depth analysis of political history. Observations confirm that a very long time in power may obviously increase the risk of age-associated problems; dynamic revolutionary or entrepreneurial idols may be misled to rely on their irreplaceable charisma for too long. However, caution must be exercised against ageism on one side versus silent acquiescence towards leaders with failing mental powers on the other, who may become victims of obscure parties and their decompensating personality disorders.

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Introduction

Current news nurture the impression that large and important states are governed by elderly people, and occasional reports indicate that there is a number of lesser known countries ruled by rather seasoned leaders. It may therefore be worthwhile to find out whether the age of

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international political leaders is really on the rise, and what the significant examples of age-associated complications are. There is a rich literature with autobiographies, biographies and learned volumes about ailing heads of state [for classic examples, see 1–4]. PubMed and other sources of scientific literature contain numerous contributions about diseases of monarchs, elected and influential politicians over the centuries. Internet sources like Wikipedia and others frequently update lists of political figures and after several years of studying this subject, one can confirm that such regular updates are useful, as the political landscape must necessarily undergo permanent changes.

This paper aims to take a snapshot of the current age records in politics, examine the development of the mean ages of politicians from 1990 to 2020 and present several of the earlier and contemporary examples of heads of state who were cognitively challenged.

Methods

Sources freely available on the Internet were used to identify the ages and times in power for ruling heads of state including monarchy. Every number was confirmed by at least 2 references considered reliable. The following groups of countries with related geographical, historical, cultural and political backgrounds were summarized for the calculations of mean ages of their leading political figures in the years 1990, 2000, 2010 and April 2020: Community of Independent States (CIS, plus Georgia): Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine and Uzbekistan; Western Europe (EU members before or in 1990): Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain and the UK; Gulf States: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates; Middle America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama; North Africa: Algeria, Egypt, Libya, Morocco, Tunisia; Panther States: Indonesia, Malaysia, Philippines, Thailand, Vietnam; South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela; sub-Saharan Africa: 40 countries in 1990, 42 in 2000 and 2010, 41 in 2020 (due to unclear situation in Sudan); Tiger States: Hong Kong, Singapore, South Korea, Taiwan. Groups of 1 or 2 singular countries will not be considered.

Results

Age

Ages and Places

The world's oldest head of state with 94 years is most certainly also one of the most popular, Queen Elizabeth II. She is followed by Sabah al-Ahmad al-Jabar al Sabah,

the Emir of Kuwait, aged 90, and Raul Castro with 88, first secretary of the Cuban Communist Party.

A remarkable number of elderly statesmen can be found in the Middle East: the president of Lebanon, Michel Aoun with 85; the president of Palestine, Mahmoud Abbas with 84; Prince Khalifa bin Salman al Khalifa (84), prime minister of Bahrain; and Salman bin Abdulaziz al-Saud (84), King and prime minister of Saudi Arabia. Beji Caid Essebsi from Tunisia, with 95 years the oldest president internationally, died in 2019, and Mahathir Mohamad from Malaysia, who had again become president of Malaysia with 92, resigned with 94 years early in 2020.

Robert Mugabe from Zimbabwe was forced to step down at the age of 93 and died 2 years later in 2019. Omar al-Bashir had to retire with 74 years in 2019 after he had been the president of Sudan for only 20 years. Hastings Kamuzu Banda had been the prime minister of Malawi from 1966 until he retired in 1994 at the age of 96. Paul Biya from Cameroon, aged 87, is currently the oldest serving African president and with 44 years in power also the international record holder, distancing Nguema Mbasogo (77/40 years) from Equatorial Guinea, Denis Nguesso from the Republic of Congo (76/36 years) and Yoweri Museveni from Uganda (75/34 years). Three other heads of State from sub-Saharan Africa managed to stay in power for >25 years: Isaias Afwerki (74) from Eritrea, Idriss Deby (67) from Chad and Paul Kagame from Rwanda (62). Only 5 leaders from other continents managed to hold on to power for the same period of time: Ali Khamenei (80/38 years) of Iran, Hun Sen (67/35 years) in Cambodia, Nursultan Nazarbayev (79/28 years) in Kazakhstan, Emamoli Rahmon (67/27 years) from Tajikistan (67/27 years) and Alexander Lukashenko (65/25 years) in Belarus.

Several points attract attention: the Middle East appears a cradle for elderly heads of state; sub-Saharan Africa seems a breeding ground for extended periods in power. It is not immediately evident whether such regional specificities increase the number of elderly leaders in different parts of the world.

Age Developments over the Last 30 Years

Twelve West European prime ministers today have a mean age of 51 years, much younger than presidents and monarchs with an average of 67 years (Fig. 1). Six heads of state in the Gulf now show a higher mean age of 70 than in 1990 with 62 years. There is no remarkable difference to the current mean age of leading politicians (prime ministers and chief executives) in the Tiger and Panther States. Heads of state in Middle and South America and also in the Community of Independent States (including

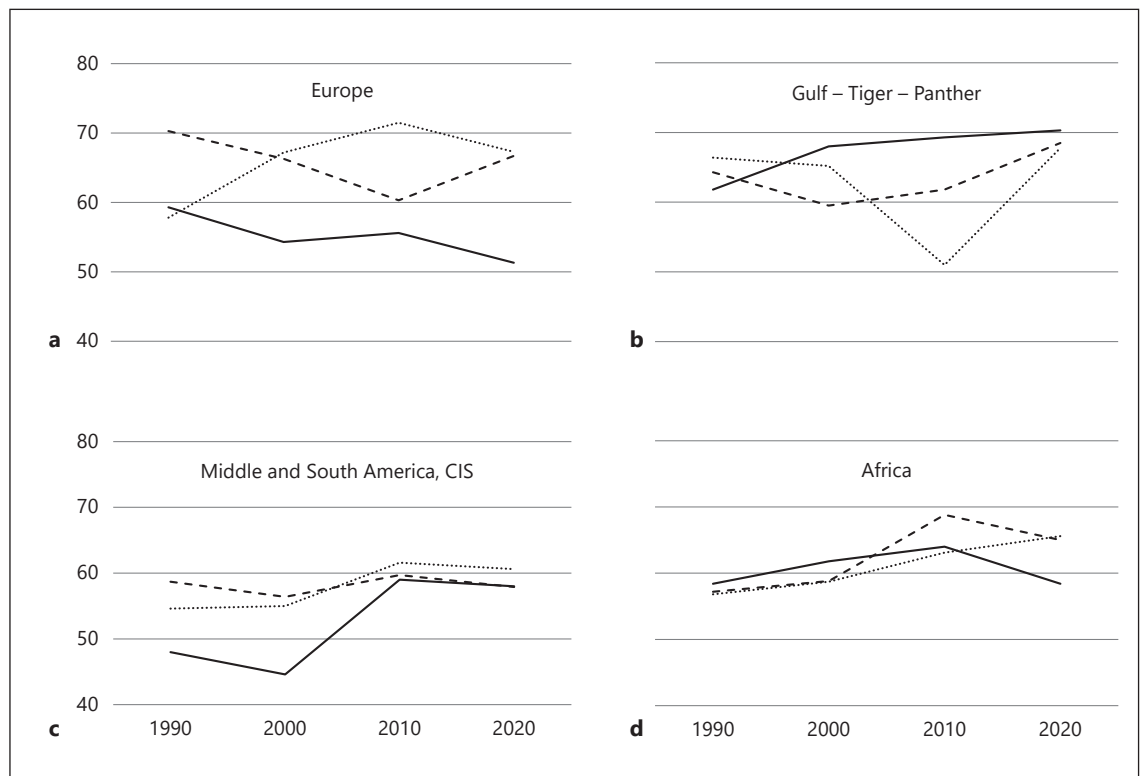


Fig. 1. Ages of prime ministers (PMs), presidents and monarchs from 1990 to 2020. *x* axis, decades; *y* axis, mean age in years. **a** In Europe (—, PMs; --, presidents; ···, monarchs). **b** In Gulf (—), Tiger (--) and Panther (···) states. **c** In Middle (—), South America (--) and the Community of Independent States (CIS; ···). **d** North African PMs (—), North African presidents (--) and sub-Saharan (···) countries

Table 1. Obesity, onerous consequence of gluttony and a sedentary lifestyle

	William the Conqueror (1028–1087)	Henry VIII (1491–1547)	August the Strong (1670–1733)	Otto von Bismarck (1815–1898)	William H. Taft (1857–1930)	Winston Churchill (1874–1965)
Weight, kg	#	140	110	147	154	114
Height, cm	173–178	188	176	190	182	173
Maximum BMI	#	39.6	35.5	40.7	42.3	38.6

BMI, body mass index. # Unknown. His size did however cause unexpected and most unpleasant complications when monks tried to force his corpse into the sarcophagus at the Cathedral of Caen.

Georgia) are on average almost 10 years younger compared to those of the Gulf, Tiger and Panther States (Fig. 1). North Africa today shows the typical age difference between younger prime ministers and older presidents (including the King of Morocco). The data on 40 and more sub-Saharan countries demonstrate a steady age increase of the acting heads of state between 1990 and 2020. This includes the outstanding examples mentioned above (see “Ages and Places”).

In summary, Western Europe currently has the youngest prime ministers compared with the other parts of the world shown in Figure 1; presidents and monarchs are usually older in countries with elected prime ministers; heads of state in the Gulf, Tiger, Panther and sub-Saharan States now are more than a decade older than in Western Europe.

Table 2. Famous 20th-century politicians with cognitive challenges during and after office

Name (life dates)	Country	In office	First symptoms	Suspected diagnosis
William H. Taft (1857–1930)	USA	1909–1913	1909	Reversible MCI, sleep apnea, obesity (Table 1)
Woodrow Wilson (1856–1924)	USA	1913–1921	1919	Strokes, mixed dementia
Lenin (W.I. Uljanow) (1870–1924)	Russia	1917–1924	1918	Trauma, strokes, neurosyphilis
Paul Deschanel (1855–1922)	France	1920–1920	1920	Frontotemporal degeneration
Paul Hindenburg (1847–1934)	Germany	1920–1934	1933	MCI
Antonio Salazar (1889–1970)	Portugal	1932–1968	1968	Traumatic hemorrhage
Franklin D. Roosevelt (1882–1945)	USA	1933–1945	1945	Multimorbidity, vascular MCI
Francisco Franco (1892–1975)	Spain	1938–1975	1974	Multimorbidity, Parkinson's disease, MCI, coma
Philippe Petain (1856–1951)	France	1940–1944	1931	MCI, dementia
Winston Churchill (1874–1965)	UK	1940–1945 1951–1955	1953	Depression, strokes
Mao Tse Tung (1893–1976)	China	1949–1976	1971	Amyotrophic lateral sclerosis
Urho Kekkonen (1900–1986)	Finland	1956–1981	1981	MCI, early vascular dementia
Fidel Castro (1926/27–2016)	Cuba	1956–2008	2012	Multimorbidity, AD
Habib Bourguiba (1903–2000)	Tunisia	1957–1987	1980	AD
Harold Wilson (1916–1995)	UK	1964–1970 1974–1976	1975	MCI ... AD
Nicolae Ceausescu (1918–1989)	Romania	1965–1989	1989	MCI
Leonid I. Brezhnev (1906–1982)	Russia	1966–1982	1974	Atherosclerosis, vascular brain disease
Pierre Trudeau (1919–2000)	Canada	1968/1984	1998	PDD
John Paul II. (1920–2005)	Vatican	1978–2005	2001	PDD
Margret Thatcher (1925–2013)	UK	1979–1990	2002	Diabetes mellitus I, mixed dementia
Robert Mugabe (1924–2019)	Zimbabwe	1980–2017	2015	Suspected DLB
Ronald Reagan (1911–2004)	USA	1981–1989	1987	MCI ... AD
Deng Xiaoping (1904–1997)	China	1982–1987	1990	PD(D)
Helmut Kohl (1930–2017)	Germany	1982–1998	2008	TBI, aphasia, paraparesis
Zine el-Abidine Ben Ali (1936–2019)	Tunisia	1987–2011	2011	Stroke
George H.W. Bush (1924–2018)	USA	1989–1993	2015	Vascular parkinsonism, mixed dementia
Boris N. Yeltsin (1931–2007)	Russia	1991–1999	1996	Multimorbidity, alcoholism, sleep apnea
Kim Jong Il (1941–2011)	North Korea	1993–2011	2008	Stroke, left hemiparesis, aphasia, MCI
Jacques Chirac (1932–2019)	France	1995–2007	2014	Mixed dementia
Abdelaziz Bouteflika (1936)	Algeria	1999–2019	2005	Several strokes, aphasia

DLB, dementia with Lewy bodies; AD, Alzheimer's dementia; MCI, mild cognitive impairment; PD, Parkinson's disease; PDD, Parkinson's disease dementia; TBI, traumatic brain injury [1–4, 6, 11, 12].

Frailty

Earlier History

One could begin with King Saul or his healer and successor David, who both allegedly suffered from remarkable mental problems in old age [5, 6]. Ailments of the elderly – but not specifically of elderly heads of state – had been a topic in classical volumes (e.g., Cicero, Cato maior). On very close scrutiny one would find the rare but highly suspicious example of senility in historical figures well before 1900, but the characteristic cognitive issues were not usually age related. The court diseases (morbi aulici, maladies de cour) [7] of the Middle Ages usually included the consequences of affluence from gluttony to high-risk

behaviors. Obesity as a visible side effect of luxury and a sedentary lifestyle has burdened politicians until today, and this probably began before William the Conqueror (Table 1). The legendary fisher king of Arthurian fame suffered a terrible lesion of his groin, a typical wound experienced during tournaments. Such after-effects of period-specific contact sports, including the sequelae of severe cerebral concussions and bleeds, handicapped many heroic noblemen. Henry VIII was one of the very last examples (Table 1).

Rex inutilis, the useless king, has been a pivotal political and legal dilemma in Europe since the early Middle Ages particularly because the welfare of a country was

bound to the well-being of the God-sent king [8]. Inter-marriage became a problem with nobility detached more and more from ordinary people. King George III of Britain (1738–1820) and his cousin Christian VII of Denmark (1749–1808) both developed incapacitating diseases which crippled urgent reforms during the Age of Enlightenment [6, 9]. Schizotypal King Ludwig II of Bavaria (1845–1886) could no longer understand the signs of time and tragically drowned together with Bernhard von Gudden, professor of neuropsychiatry [10]. Ludwig’s younger brother and successor Otto (1848–1916) early on developed severe paranoid schizophrenia with a relentless course. Ironically, the physicians who were ordered to watch over him while in custody made essential contributions to neuroscience (Gudden, Kraepelin, Nissl and others) [6]. Naturally, other factors neither associated with genes nor with peculiar high-risk behavior may have contributed to the mental troubles in noble patients. Ludwig II and also Taisho-tenno of Japan (1879–1926), for example, contracted meningitis and endured recurrent symptoms for the rest of their lives.

Numerous examples of monarchs with primary (e.g., genetic) or secondary (e.g., metabolic and traumatic) cognitive impairment (rex inutilis or morbi aulici) can be found over many centuries. The descriptions and early interpretations of their cases do not usually allow for a reliable diagnosis. This changes around the turn to the 20th century.

After 1900

Contemporary neuropsychiatric concepts and diagnoses are still rooted in thoughts, methods and insights gathered a hundred years ago. Therefore, descriptions from the last century are easier to translate into modern diagnoses. The medical histories of US American presidents are documented particularly well, and a number of them are listed in Table 2.

Several politicians listed in Table 2 developed cognitive impairment late while still in office (Antonio Salazar; Urho Kekkonen; Harold Wilson; John Paul II; Ronald Reagan) or soon thereafter (Margret Thatcher; Helmut Kohl; Pierre Trudeau; Jacques Chirac; George Herbert W. Bush) so that their political legacy remained largely untarnished [11, 12]. The US presidents in Table 2 are not the only ones with medical and particularly mental problems, but they have been selected for this lineup because of their prominent cognitive deficits. The first example, William H. Taft, is atypical, because his underperformance was reversible [13]. He disappointed those who had expected a much more dynamic presidential leader-

Table 3. The abbreviated parallel medical histories of Woodrow Wilson (left) and Wladimir Iljitsch Uljanow (Lenin; right) [11, 14–16]

Woodrow Wilson (1856–1924)	Lenin (1870–1924)
1896 left hemiparesis 1906 amaurosis left eye	1904 hypertension, “sleepy head” 1908 depression
1913 left hemiparesis 1915 headaches 1919 April confused June transient amnesia September TIA October severe stroke, left hemiplegia	1914 headaches, insomnia 1919 headaches, collapse
1921 end of term	1921 “ill and old,” lassitude, blackouts 1922 several strokes, right hemiparesis Severe aphasia and dysarthria
TIA, transient ischemic attack.	

ship. Taft regained enthusiasm when he lost weight after his presidency and became an impressive chief justice in and after 1921. Boris Yeltsin is a later and less impressive example of recovery after his time in office with better control of his risk factors alcohol, obesity and sleep apnea. Taft’s successor, Woodrow Wilson, was not a healthy man when he was elected president [11, 14]. He had suffered from first symptoms of a vascular disease in 1896 before he was appointed president of Princeton University in 1902, became governor of New Jersey in 1911, lost his first wife in 1914 and married his second wife Edith on the advice of his physician Admiral Cary T. Grayson. The USA entered World War I in 1917. He appeared confused during the peace negotiations in Paris in April 1919 and suffered a severe stroke in October 1919, which left him severely disabled and incommunicado for several months while his wife and his physician ran government affairs. Woodrow Wilson’s medical history bears striking resemblance to Lenin’s fate on the other side of the Atlantic (Table 3).

Lenin’s last utterances and scribbles were desperate attempts to prevent Stalin from succeeding as a general secretary (“Stalin is too rude and this defect ... becomes intolerable in a general secretary”). Lenin died young, at the same age as his father, who had also developed cerebrovascular disease [15, 16]. At around the same time the admired gentleman politician and new French president



Fig. 2. Winston Churchill (overweight, smoking a cigar), Franklin D. Roosevelt (smoking a cigarette; paralysis of right arm) and Josef Stalin (from the left; Yalta conference, 1945).

Paul Deschanel began to show extravagant behavioral changes but retained enough insight to step down (frontotemporal dementia appears the most likely diagnosis) [17].

The senile and exhausted Reichspräsident Paul von Hindenburg, worn out by the endless political push and pull of the late Weimar republic, gave in to his ultra-conservative coterie and handed the political power over to former corporal Adolf Hitler in 1933, whom he had loathed so much a little earlier [11]. Years later another war hero, 84-year-old French marshal Petain, head of the Vichy regime, became convinced that a collaboration with Nazi Germany, even against French resistance fighters, was honorable and advantageous [17, 18]. Ominous erratic behavior had been observed in the 1930s, but a clear diagnosis of dementia was only made in 1947.

The serious hypertension of Franklin D. Roosevelt had been left untreated for too long, and the cognitive consequences could no longer be overlooked at the Yalta peace conference in 1945 (Fig. 2). Roosevelt succumbed to a major stroke a few weeks after the conference [19, 20]. Churchill produced symptoms and signs of cerebrovascular disease in the 1950s [21, 22]. Stalin became a victim of his own paranoia when he suffered a fatal stroke in 1953, and none of the medical specialists he had prosecuted was available [21, 23].

Somatic frailty and cognitive rigidity afflicted the history of communism ever more. Breshnev endured symptoms of atherosclerosis during the last years of his life in office. Andropow and Tschernenko only lasted

for 1 or 2 years as multimorbid general secretaries [11]. They were followed by Michail Gorbachev, whose mere pace of reforms stressed out the senile GDR troika of Erich Honecker (1912–1994), Willi Stoph (1914–1999) and Erich Mielke (1907–2000), 2 of them stricken by disease. At the turn from 1989 to 1990 Wojciech W. Jaruzelski of Poland was 67 (but seemed much older), Ramiz Alia of Albania 75, Bruno F. Straub from Hungary 76, Gustav Husak of Czechoslovakia 77, and Todor Zhivkov from Bulgaria 79. It is almost touching to see how a feeble and pitiful 71-year old Nicolae Ceausescu of Romania tried to placate and soothe the crowd at his last public speech in Bucharest on December 22, 1989, 3 days before he and his unpopular wife Elena (73) were executed. Mao Tse Tung developed amyotrophic lateral sclerosis, and Deng Xiaoping suffered from Parkinson's disease. Fidel Castro was left as one of the last men standing, be it on shaky feet and increasingly demented (Table 2).

At around the same time in Tunisia president Habib Bourguiba's dementia became evident, and he fell victim to a medical coup d'état, led by his own prime minister Ben Ali (Table 2). Later Ben Ali's failing mental powers were compensated by his wife Laila Trabelsi. The Arab Spring started in Tunisia, swept the Ali clan to Jeddah in Saudi Arabia, led to the downfall of Hosni Mubarak in Cairo and the killing of Muammar al Gaddafi in Tripolis. Both had long fallen behind their own progressive images. The Royal family of Saudi Arabia however remained impervious. It was founded by Abd al-Aziz ibn Saud (1876–1953), who had 45 sons. His son Saud and first successor was removed from power in 1964, followed by his third son Faisal, murdered in 1975. The fifth son, King Chalid, died from heart disease in 1982, followed by his son Fahd until 2005, by Abdullah until 2015 and then his 32nd son Salman until today, all of whom suffered from strokes. Salman is severely handicapped by a hemiparesis and dysarthria and tragically relies on Crown Prince Mohammad bin Salman al Saud. Abd al-Aziz Bouteflika (Table 2), former president of the UN general assembly, president of Algeria from 1999 and repeatedly re-elected, suffered a minor stroke in 2013, 2 strokes in 2014 with paresis, dysarthria and cognitive impairment, and could finally be convinced not to stand for a fifth term in 2019.

North Africa and the Middle East cannot only boast single record-holding heads of state (see "Ages and Places" above), a high mean age of politicians in high office (see "Age Developments over the Last 30 Years"), but also exceptional examples of cerebrovascular morbidity.

Discussion

Heads of state have been challenged through the ages, but before 1900 the threats to cognitive performance had been different from the usual age-associated ailments increasingly prevalent since the beginning of the twentieth century. Today there are many examples of elderly politicians, some of whom had been in power for rather long periods of time, particularly in Africa. The mean age of political leaders has not increased significantly over the last 3 decades in most parts of the world. Fundamental historical developments were promoted or permitted by the failing cognitive capacity of ageing politicians who had been known to swing the scepter most energetically in previous times.

A clearcut medical diagnosis of severe hypertension, a large stroke, advanced Parkinson's disease and also significant cognitive impairment or other obvious diseases is a burden and a relief at the same time. Nobody would really expect an afflicted person to fulfill the most demanding tasks, not even the patient him- or herself. But this depends on 2 conditions, first that sufficient insight is retained in order to step down and second that the patient is not being abused as a mere puppet by others for political or financial purposes. Mindful observers would easily identify such cases. The question remains what the legal and political chances are to replace the demented head of state with an appropriate successor.

Several historical events were mentioned which revealed cognitive impairment in key players while under pressure: the Paris and the Yalta peace conferences (Woodrow Wilson, Franklin D. Roosevelt); the rise of Nazi Germany (Paul von Hindenburg, Philippe Petain); the breakup of Marxism and communism (Brezhnev, Honecker, Ceausescu, ...); the Arab Spring (Ben Ali, Hosni Mubarak, Muammar Gaddafi); and the rise of reckless princelings (North Korea, Saudi Arabia). In some cases, a clear diagnosis was reached in the aftermath of these events.

Political duties are demanding, and the wear and tear of years in office can be observed in many heads of state [24]. Their skills, personalities and attitudes can be very different, and there is clearly not the one ideal model for the good and sustainable politician. But are there warning signs which need to be taken more seriously in elderly candidates than in budding, promising, physically fit talents of a younger age, who may find it easier to adapt to their new roles, live up to their own promises and to the expectations of others? The absence of dementia or of mild cognitive impairment will not be good enough for a task which needs permanent mental and physical strength over long periods of time. Some of the following features may serve as markers of im-

minent cognitive failure and help to identify candidates at risk: the statistical risk which comes with very old age; a record of failures and how they were dealt with; signs of physical frailty and the kind of multimorbidity which may impact on endurance and cognitive capacity in due course; impaired fluency or limited communicative content, rambling style, ideological phrases instead of focused pragmatism [25]; unsubstantiated pride relying on previous achievements; mild behavioral impairment [26]; tiring easily, memory lapses; mild cognitive impairment; support-seeking gestures [27]; a tightly knitted and manipulative entourage pursuing their own interests.

This is not an attempt to rewrite political history as a history of senility or a general warning against candidates over the age of 65. Some of the historical cases presented may however help to identify individuals with an increased risk of failing in office. The importance of experience and wisdom which comes with a longer life has long been a subject of political philosophy and constitutional law. The Roman "senate," derived from *senex*, old person, is an early practical manifestation of the belief that personalities, who have reached a higher age, must have done something right and that some of this knowledge may be useful for the community. However – and without stigmatizing old age – it does come with its own typical problems and perils, which can be fatal if complicated by organic [28] or nonorganic personality disorders [29, 30].

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References

- 1 Park BE. *The Impact of Illness on World Leaders*. Philadelphia: Univ of Pennsylvania Press; 1986.
- 2 Post JM, Robins RS. *When Illness strikes the Leader. The Dilemma of the Captive King*. Philadelphia: Yale Univ Press; 1993.
- 3 Ludwig AM. *King of the Mountain. The Nature of Political Leadership*. Lexington: Univ Press of Kentucky; 2002.
- 4 Owen D. *In Sickness and in Power*. London: Harper Collins; 2008.

- 5 Ben-Noun L. Mental disorder that afflicted King David the Great. *Hist Psychiatry*. 2004 Dec;15(60 Pt 4):467–76.
- 6 Förstl H. [Politicians' Personal Physicians: Careers and Complications From King David Until Today]. *Dtsch Med Wochenschr*. 2019 Dec;144(25):1795–802.
- 7 Kümmel WF. De Morbis Aulicis: on Diseases Found at Court. In: Nutton V, editor. *Medicine at the Courts of Europe*. London: Routledge; 1994. pp. 15–48.
- 8 Peters E. The Shadow King. *Rex Inutilis in Medieval Law and Literature*. 1st Ed. New Haven: Yale University Press; 1970.
- 9 Peters T. FitzPatrick Lecture: king George III and the porphyria myth – causes, consequences and re-evaluation of his mental illness with computer diagnostics. *Clin Med (Lond)*. 2015 Apr;15(2):168–72.
- 10 Förstl H, Immler G, Seitz M, Hacker R, Ludwig II, King of Bavaria: a royal medical history. *Acta Psychiatr Scand*. 2008 Dec;118(6):499–502.
- 11 Förstl H. Demented presidents – risks and side-effects. *Dtsch Med Wochenschr*. 2018 Dec;143(25):1837–41.
- 12 Palo J. The cover-up of president Urho Kekkonen's dementia and its impact on the political life of Finland—a personal account. *Eur J Neurol*. 1999 Mar;6(2):137–40.
- 13 Sotos JG. Taft and Pickwick: sleep apnea in the White House. *Chest*. 2003 Sep;124(3):1133–42.
- 14 Toole JF. Dementia in world leaders and its effects upon international events: the examples of Franklin D. Roosevelt and T. Woodrow Wilson. *Eur J Neurol*. 1999 Mar;6(2):115–9.
- 15 Trotzki L. Lenin's death and the shift of power. In: *My Life*. 1929. pdf, Marxists' Internet Archive, Marxists.org.
- 16 Lerner V, Finkelstein Y, Witztum E. The enigma of Lenin's (1870–1924) malady. *Eur J Neurol*. 2004 Jun;11(6):371–6.
- 17 Boller F, Ganansia-Ganem A, Lebert F, Pasquier F. Neuropsychiatric afflictions of modern French presidents: Marechal Henri-Philippe Petain and Paul Deschanel. *Eur J Neurol*. 1999 Mar;6(2):133–6.
- 18 Attier-Zmudka J, Sérot JM. A particularly tragic case of possible Alzheimer's disease, that of Marshal Petain. *J Alzheimers Dis*. 2019;71(2):399–404.
- 19 Bruenn HG. Clinical notes on the illness and death of President Franklin D. Roosevelt. *Ann Intern Med*. 1970 Apr;72(4):579–91.
- 20 Bateman HE. Observations on president Roosevelt's health during world war II. *Miss Valley Hist Rev*. 1956;43(1):82–102.
- 21 Ali R, Connolly ID, Li A, Choudhri OA, Pendharkar AV, Steinberg GK. The strokes that killed Churchill, Roosevelt, and Stalin. *Neurosurg Focus*. 2016 Jul;41(1):E7.
- 22 Moran CM. *Winston Churchill: the struggle for survival*. London: Constable; 1966.
- 23 Miasnikov AL. The end. *Sov Rev*. 2016;32(1):84–92.
- 24 Olenski AR, Abola MV, Jena AB. Do heads of government age more quickly? Observational study comparing mortality between elected leaders and runners-up in national elections of 17 countries. *BMJ*. 2015 Dec;351:h6424.
- 25 van den Berg E, Jiskoot LC, Grosveld MJ, van Swieten JC, Papma JM. Qualitative assessment of verbal fluency performance in frontotemporal dementia. *Dement Geriatr Cogn Disord*. 2017;44(1-2):35–44.
- 26 Martin E, Velayudhan L. Neuropsychiatric symptoms in mild cognitive impairment: a literature review. *Dement Geriatr Cogn Disord*. 2020 Apr;14:1–13.
- 27 Durães J, Tábuas-Pereira M, Araújo R, Duro D, Baldeiras I, Santiago B, et al. The head turning sign in dementia and mild cognitive impairment: its relationship to cognition, behavior, and cerebrospinal fluid biomarkers. *Dement Geriatr Cogn Disord*. 2018;46(1-2):42–9.
- 28 Förstl H, Besthorn C, Hentschel F, Geiger-Kabisch C, Sattel H, Schreiter-Gasser U. Frontal lobe degeneration and Alzheimer's disease: a controlled study on clinical findings, volumetric brain changes and quantitative electroencephalography data. *Dementia*. 1996 Jan-Feb;7(1):27–34.
- 29 Watts AL, Lilienfeld SO, Smith SF, Miller JD, Campbell WK, Waldman ID, et al. The double-edged sword of grandiose narcissism: implications for successful and unsuccessful leadership among U.S. Presidents. *Psychol Sci*. 2013 Dec;24(12):2379–89.
- 30 Burkle FM Jr. Antisocial personality disorder and pathological narcissism in prolonged conflicts and wars of the 21st century. *Disaster Med Public Health Prep*. 2016 Feb;10(1):118–28.